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Gleanings in Bee Culture

December, 1959 CONTENTS Vol. 87, No. 12

Monthly Honey Report	Walter Barth	709
Beekeeping in Uruguay	F. Rodriguez Ycart	711
Our Supply of "Bee Sweetening"	V. C. Offensend	716
Honey Used in Medicinal Preparations	Drs. A. R. Gennaro, C. N. Sideri, N. Rubin and A. Osol	719
4-H Educational Display	Bruce McAlpin	721
Beekeeping Can Be Profitable	Ed Prewitt	722
"Honey Market News" You Can Use	Charles W. Gouget	725
Cars Kill Bees	George I. Zetler	727
I Started Beekeeping on a Dare!	Maynard D. Curtis	728
School Children Enjoy Bees	G. L. Jeffers	731
Plastic Comb Honey Container		732
Research Review	Dr. Roger A. Morse	733
News Reel		734
Editorials		736
Live and Learn	Propolis Pete	738
Let's Talk about Honey Plants	Dr. Harvey B. Lovell	739
Merry Christmas, Folks	Mrs. Benj. Nielsen	741
Fifty Years of Wintering Bees	Grover Pfister	742
Christmas Time	Harriett M. Grace	745
The Florida Convention	Henry J. Rahmlow	746
A Talk to Beekeepers	M. J. Deyell	748
News & Events		750

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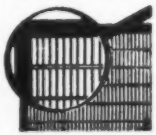

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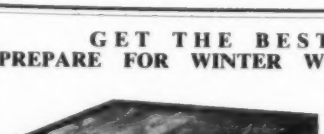

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Monthly HONEY Report

WALTER BARTH, Field Editor, San Antonio, Texas

NATIONAL HONEY WEEK is over for another year, and while it is probably impossible to point out specific results, we can only hope that this wonderful program was as successful as in past years. It is not possible to show the Honey Industry's appreciation to the many beekeepers who participated in this program as there were so many workers, but we on Gleanings take this moment to salute them. We have a conception of what has been done and what a tiring thankless job it must have been.

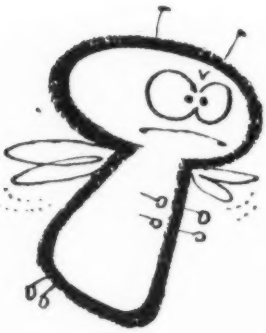
Beekeepers are looking for cold weather to put some spirit into honey sales. On the whole sales are only fair and in some areas price has shown no great strength despite a reduced crop nationally. It is particularly noticeable in five pound retail packs. Far too many reports are coming in with retail 5-pound prices as low as $1.20 and $1.25. The smaller sizes are apparently holding their own.

A shift in container styles is going on. Producer packers are showing a definite preference for the four pound jar. In reading the reports from our writers during the past year I have noticed a swing away from the 5-pound glass jar, motivated by increasing costs that compel beekeepers to keep prices down on a retail bulk pack. While grocer acceptance was slow at first, merchants have quickly come to realize that it is possible to make better use of their shelf space with the thin 4-pound jar. The jar also helps beekeepers to produce a lighter colored pack compared with the round jar.

This same trend is also visible with packers although they have taken a different road. Here there has been a switch from a 5-pound tin to a 4½, and in some instances to a 4-pound tin pail. Beekeepers might have followed suit but it has not been possible to get adequate sources of supply. These pails have been converted from other uses, such as for packing oysters. Since most bee supply dealers have adequate stocks of glass, the 4-pound jar became the easiest route to follow, and in my opinion, the best route for a new retail bulk pack. Tin pails do little for honey on a grocer's shelf.

That brings me to the subject of packers. I had the pleasure of visiting T. E. Burleson, a honey packer, and the Sioux Honey Plant at Rogers, two of the largest honey packers in the Southwest. It was good to get a packer's reaction to the current marketing situation. The Sioux Honey Association is doing a fine job of developing new products and is working hard to put them across. And those samples I was given, such as honey peanut butter and honey syrup, were really good. As soon as Ed Burleson's son comes out of the service we will see things really expanding in Waxahachie. The progressive programs by these two large packers will eventually have a healthy effect on the market in the southwest and parts of the Mountain States which they serve.

At times our reporters inject new local problems which are often overlooked, so I am going to bring them into the spotlight now. D. L. Murrell of Crowley, La., is concerned over the spread of Fire Ants in his state. They are becoming a serious pest of honeybees. This is our first report on the subject but as the ant spreads we should hear more. In southwestern beekeeping circles the subject is the Acarine mite, which may make its debut in one of these border states. Here is a serious pest and any reports from this area should be read by all beekeepers. At the moment the problem is **regional** but if the mite makes an entry the situation will quickly become a national menace to honey producers.



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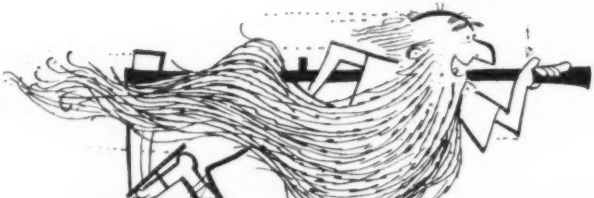


Gleanings in Bee Culture, Medina, Ohio

Author Mr. F. Rodriguez Ycart (left) and Mr. Simon Serebrenic, the beekeeper mentioned in this article.

F. RODRIGUEZ YCART
Editor of El Apicultor Americano
Prof. of Beekeeping
Montevideo, Uruguay

Beekeeping in URUGUAY*

An intense campaign was begun in 1956 by the Department of Agriculture in Uruguay to stimulate the establishment of artificial prairies composed of white and red clover, alfalfa, etc. This program should insure a bright future for beekeeping in Uruguay.

THE REPUBLIC of Uruguay is a South American country with some 3,000,000 inhabitants and an area of 187,000 square kilometers (approximately 79,000 square miles), consisting mainly of rolling plains, and with a sub-tropical climate. Even though cattle and sheep raising is the principal industrial activity, Uruguay is developing towards a more and more complete agricultural activity, and simultaneously with this development beekeeping is progressing increasingly.

History of the Beekeeping Development

Beekeeping has been undertaken in Uruguay since 1834 when the first bees

* This article was prepared over 3 years ago.—Ed.

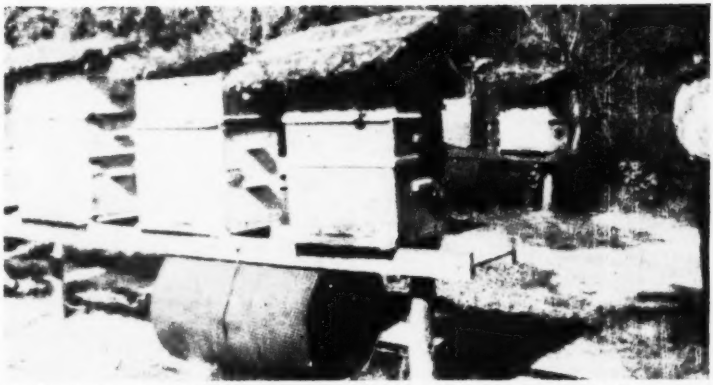
The Apiary of Mr. F. Semenchuk. Note the thatched roofs.

were imported. Bernardino Rivadavia, a President of Argentina, introduced that year two bee colonies from France but only one colony survived the trip. This bee colony was reproduced and extended from West to East through the river banks. But the development of beekeeping was slowed for two principal reasons. First, Uruguay, being an almost exclusively livestock raising country, with most of its territory being occupied by cattle and sheep, bees had available few flowers other than those of the few wild trees alongside rivers and brooks. Secondly, the people in Uruguay lived mainly on meat and consequently their honey requirements were too low to encourage beekeepers to increase their production. It was only in 1902 that Italian bees were introduced in Uruguay by Senor Antonio Malaquina, a professional beekeeper in the Department of Salto, one of the best known beekeepers of Uruguay.

The situation has been changing in the past 20 years. There have been fundamental changes introduced in the popular diet, such as an increasing consumption of milk (about 500,000 quarts of milk are at present consumed daily in the city of Montevideo), butter, fruits and vegetables, and an increase in the use of honey in the Uruguayan homes is continuously being noticed. One of the factors that slowed the development of home utilization of honey has been the lack of cooperation among beekeepers. Their product is sold to retailers who care only for selling to consumers without making any effort to encourage the use of honey. A campaign has been undertaken by the publishers of El Apicultor Americano by organizing regular regional meetings as a means to attaining a change in the economic and commercial policy in marketing the national honey production.

An intense campaign was begun in 1956 by the Department of Agriculture in Uruguay with the cooperation of the Rural Association and Rural Federation for the modification of the present method of livestock raising based on the natural grasslands which are becoming more and more exhausted—in order to stimulate the establishment of artificial prairies composed of white and red clover, alfalfa, etc.

This will be highly beneficial to beekeeping activities for it will transform the lands devoted to cattle raising into areas which will be most convenient for bee culture since it will make available wide areas of such nectar-bearing plants as alfalfa and clovers. The Uruguayan territory is irrigated by two important rivers: the Uruguay (400 miles) and the Rio Negro River (380 miles), as well as by a large number of minor



An island apiary. The colonies are over floats to protect them in case of a flood.

streams. The banks of these are covered by abundant trees and bushes of indigenous species which are very important because of their plentiful or long lasting blooming as well as for their high pollen production. Colonies located on the banks of these rivers and streams or on their islands often show productions of 200 pounds of honey.

Movable-Frame Hive Increasing

Two main methods are in use at present in Uruguay: the movable-frame hive and the fixed-comb hive. However, the American movable-frame hives are more and more replacing the old fixed-comb hives. The first movable-frame hives were imported more than 30 years ago. After the first imports several factories were established for the local production of the American-type hives and implements and at present all the materials utilized are of local manufacture.

Honey extractors are also locally manufactured, the main models being the reversible two or four-frame hand operated extractors and the 20-frame radial extractors operated by electric motor.

As was said above, the country does not show favorable conditions on all its territory for a good bee culture development, especially on those areas which are exclusively devoted to livestock raising, with 10,000 to 20,000 acre ranches. Some exceptionally large ranches have areas of 150,000 acres. These ranches are mostly covered by natural pastures and the cattle keep the vegetation down, thus not allowing the blooming of several excellent honey plants.

For this reason, most of the local bee culture is carried out on a narrow area running alongside the Uruguay river starting at the Department of Salto and covering part of the Departments of Paysandu, Rio Negro, Soriano, San Jose, Canelones and Colonia. This area I call the "Western honeybee area". Incidentally this part of the Uruguayan territory is devoted to an intensive agricultural exploitation with large areas of wheat, corn, peanut, sun-flower, red clover, alfalfa, e'c.

Some honey crops are obtained from orange plantations like those in the Department of Salto, others are obtained from alfalfa plantations like those in the Department of Canelones.

Beekeeping Training

The College of Agriculture of Uruguay includes beekeeping in the regular curriculum as do the three Agricultural Stations under the supervision of the College of Agriculture and located in the Department of Salto, Paysandu and Cerro Largo (Banados de Medina). A special training on beekeeping is given at these stations to students before being graduated as agricultural experts Special courses are also given at the Biological Laboratory of the Department of Agriculture; these courses last one year and after same a certificate of proficiency in beekeeping is extended to students.

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Mr. F. Rodriguez Ycart (center) and his pupils during a visit to apiaries at "Vivero Nacional de Toledo".

Also a private organization, the Uruguayan Beekeeping Association (a branch of the Rural Association of Uruguay) through its School of Beekeeping gives a complete course (theoretical and practical) of nine months duration. Theoretical courses are given from April to August and the practical ones go from September to December. The courses are completed with visits to industrial apiaries and factories of bee supplies. After the final examination a certificate of proficiency is issued to students. The courses, as well as the direction of the School are in care of the author of this article.

Beekeepers' Associations

There are five Beekeepers Associations in Uruguay. The Uruguayan Beekeeping Association established in 1934 is the senior organization and it is located at 864 Uruguay Ave., Montevideo. The other four associations are the following: Asociacion Apicola Saltena (Salto, Uruguay), Agremiacion de Apicultores de Paysandu (Paysandu, Uruguay), Sindicato Apicola de Soriano (Mercedes, Uruguay), and Asociacion Apicola del Sur (Santa Lucia, Canelones, Uruguay).

Many beekeepers in each area are members, respectively, of the above mentioned associations and inasmuch as there is not yet a National Federation, the Uruguayan beekeepers are trying to establish such a Federation for a better and more efficient development of their industry.

Honeybees in Pollination

A great tendency to the formation of forage prairies is developing at present in Uruguay and the utilization of honeybees as a pollinating agent is being considered for the first time. However, bees are not yet being utilized systematically for that purpose. In 1953 some contracts were signed by the Sterling Company (owned by the author of this article) for leasing beehives for pollination of apple tree plantations at a price of $5.00 pesos (Uruguayan currency) per colony not including transportation cost. Special clauses prohibiting the use of pest controlling chemicals, as well as removal of beehives within the plantation area, and clauses against fire and robbery were included in the contracts. The contract terms were fulfilled by the fruit growers. Some contracts were also signed with red clover seed producers for pollination of plantations located as far as 170 miles away from the suppliers' apiaries. The hives were prepared for the trips by fitting them with special entrance screens which only allow the ventilation of the hive. Double hives were fastened with steel hoops.

Production of Royal Jelly

There is a great demand in Uruguay for royal jelly and many beekeepers are producing this jelly which is utilized in the treatment of several human diseases as well as in veterinary medicine for the treatment of racing horses. The price at the local market for this product ranged from 5.00 pesos to 8.00 pesos (Uruguayan currency) per gram. Jelly is delivered to consumers mixed with honey in the proportion of 1½% (one and one half per cent). In order to avoid its possible use without the necessary scientific control the author has submitted some samples of this product to the Research Institute of the College of Medicine for a corresponding test.

Specialized Periodical Publications

The only such publication in Uruguay is El Apicultor Americano, the editor of which is F. Rodriguez Ycart, 2030 Yaguaron Street, Montevideo, Uruguay. The name of this publication is self explanatory of its purposes for reaching a better and most comprehensive knowledge of beekeeping through the Americas.

Production of Italian Queens

The Department of Agriculture of Uruguay has a specialized Section for this purpose at: Vivero Nacional de Toledo, Montevideo. Italian queens have been imported from Italy and more recently from the United States of America. The leading professional breeder of queens is Mr. Simon Serebrenic, at Estacion 25 de Agosto, Florida, Uruguay. At his apiary El Trebol, this old pioneer of bee culture breeds the best queens and bees existing in this country. He is a real master in any sense and perhaps one of the best and most complete in the world. His knowledge of many languages enables him to be up-to-date with the evolution of modern beekeeping. For more than 40 years his works on genetics applied to the Italian breed have allowed him to raise queens with high egg laying capacity and that are very docile, regular and clean in their work together with a very low swarming impulse.

Sanitary Conditions

Sanitary conditions have always been very satisfactory in Uruguay. Bee mortality was lately imputed in part to acarine disease, apparently introduced very recently from Argentina through the Western litoral, the first cases having been reported in 1953. Foulbrood, either American or European, was never diagnosed and Nosema disease was only observed after some laboratory tests. Some isolated cases of bee mortality have been supposed to be due to ingestion of toxic pollens.

Handling of Apiaries

Apiaries are left in the open in Uruguay all year round for the lowest temperatures very seldom go below 0°C., and sometimes the temperature even in winter is so mild that we should not be surprised if we find bees working actively and also, in certain areas where the August-blooming Eucalyptus globulus is abundant, we can see them in a busy activity. The local beekeepers show an increasing tendency to leave about 30 pounds of honey as a reserve supply in each complete hive.

According to the official census made in 1951, the total number of hives in the country were 70,594 from which 25,303 were fixed-comb hives and 45,291 movable-frame hives.

The honey production in Uruguay is 1,560,000 pounds per year, which makes a yield of 22.1 pounds per hive. Such a low yield could be due to the great amount of fixed-comb hives existing in this country. An approximate estimate shows that about 2,000 beekeepers handle from 6 to 800 hives.

Insecticide Sprays

The problem of insecticide sprays was encountered during the last locust invasion from the Paraguayan Chaco; the invasions were so heavy that they produced darkness by covering the sunlight. The airplanes of the Locust Fighting Service worked tirelessly spraying the swarms of locusts with Gammexane and dinitro-o-cresol. The urgency in taking some action against locusts and the fact that the location of apiaries was unknown produced a great damage by killing very important quantities of bees, and for that reason many claims for total losses were addressed to the Department of Agriculture. This Department gave the author of this article the mission of carrying on an investigation which proved that sprays were made right over the apiaries or in close-by areas.

Our Supply of "Bee Sweetening"

Honey was a rare delicacy in the days of yore. Before the present day movable frame hives and super markets it was hard to find. Bee trees were one source. That is if you were clever enough to find one.

V. C. OFFENSEND
Columbus, Ohio

Dad's "bee-box".

EVEN THE beekeepers of ancient times got stung! By the bees, that is. Not often, though, for they had slaves who did the work, and if **they** got stung it was of little concern. (The slaves were not so dumb. They used a mixture of wild mallow, fenugreek—an annual plant—and oil to alleviate the pain from bee sting.)

But I'm getting away from my subject. That is the trouble in reading about bees: there are so many interesting aspects of the story.

When I read about the slaves gathering the honey for their masters, I was reminded of how my father used to get our supply of "bee-sweetening"—as Abraham Lincoln called it. Dad's method was quite a job—one he enjoyed, though, and would extend, off and on, through the summer on into fall. He was not a beekeeper at that time, nor did he have slaves to do the work. Dad's method was to "take a bee-tree". But let me hasten to say that although at that time—around the turn of the century—it was a customary thing to do, it is illegal now.

"Lining" the Bees

Dad had a "bee-box" for his work. This was composed of two boxes fitted together, each about four inches long, three inches wide and two inches deep. The top box had a sliding bottom, slightly extended for easy operating, and a glass top. In the bottom box he would put some syrupy bait to lure the bees. (If pure sugar had been used, they would have had to carry water to dissolve it before they could assimilate it for their use.) This box of bait was placed on a fence post or some other available place out in the open sushine. He'd find a bee working on some flowers, hold the top box over it and close the sliding bottom, trapping the bee. He would then set the box with the bee in it over the box of bait and remove the slide. In a minute or so the bee would accustom itself to the box and would find the bait, settle down to load up and soon be ready to fly home.

To find that home was Dad's aim. He would remove the top box, then with eyes accustomed to watching for just such a performance, he would watch the bee rise straight into the air, fly around for an instant to get its bearings and then take off in a "bee-line"—the shortest line home. Dad would repeat this process with several bees. When he found three or four taking off in the same direction, he would assume that in that direction there would be a swarm of bees working. After walking for some distance along the line of flight of the bees, he would try the bee-box again to make sure he hadn't changed his course or passed the swarm.

Finally Located the Bee Tree

As he walked along he would be looking and listening. Looking for a hollow tree and listening for the telltale buzzing—almost a roaring—of a swarm of bees at work. I was with him one day when he found what he was looking for. He stopped me and cautioned me to listen. He was listening. Then he spied it and pointed it out to me. It was an old gray stub of a tree, standing out away from the other trees in full sunshine. Bees were flying in all directions. Some were coming and some were going. "Busy-ness" personified. But of most interest was the light airy swarm that surrounded the tree at the height of the opening in it. These bees seemed to almost stand still in the air except for their wings, and there were so many and so much in motion that the air was gray. Part of the work of these bees was to keep the hive (or the inside of the hollow tree in this case) cool by keeping the air in motion about it. The buzzing from this busy swarm was so loud and so constant that today it could be mistaken for the droning of a distant plane.

Quite often these trips would stop Dad in a farm yard where he would find that the bees had led him to a man-owned hive. Finding these conditions, he would go back home (after a visit, of course) and start all over again some other day.

These trips were taken on warm, sunny Sunday afternoons as a rule, the only afternoon he would have the time. Finding a bee-tree would not be accomplished in one trip. Sometimes it would be almost fall before he would locate one. But Dad was persistent and very few summers went by without his finding at least one tree.

Having found the tree, Dad would bide his time, knowing that to take a tree, the weather would have to be cool enough to cause the bees to be practically dormant. Bees have a very

persuasive way of fighting for their rights. He would choose a clear, cold night for his foray against the bees and their cache of honey. Then with three or four helpers and loaded down with equipment, he'd be on his way.

Preparing to Get the Honey

Equipment? Lanterns—no flashlights in those days; an axe and a saw—the tree had to be cut down; large buckets in which to take home the loot; ladles or large spoons. The spoons he used were long-handled, old-fashioned iron ones—the kind used for cooking at the fireplace. These he used for dipping and digging the honey from the fallen tree.

It was a big night for the men of the group—a sort of lark. They'd joke about how handsome they were in their regalia. But handsome was hardly the word. They all would have tied cord around their pant-legs at the ankles and around their sleeves at the wrists. They did not want a bee to crawl inside their clothes, get warmed up and start to assert itself. Each would wear a big square of mosquito netting over his hat, loose about his face but tied tight around his turned-up coat collar. They also wore heavy gloves, all but Dad. I have known him to tie down his pant-legs and sleeves, but that was all. "Of course they sting me," he'd say, "but what's a few stings? Nothing left of them by morning." And that was the way it was. He seemed to be immune from the bee poisoning.

With a lot of loud bantering they would start out, buckets and spoons clattering as they walked through the fields and entered the woods. The only way we could follow them was by the eerie, bobbing lights as they strode on toward their destination perhaps a mile or two away.

Arriving at the tree, the real work began. Being something of a woodsman, Dad would have decided which way to fell the tree. So with strong backs and arms to do the work, the tree soon came crashing down.

The tree being hollow, would shatter, exposing the bees and their supply of honey. The men worked fast at this stage to clean away broken limbs, etc., and get as much honey from the tree as possible while the bees were still stunned and inactive. However, there were always enough live and angered by the disturbance to make things interesting for the men.

Dad would always hunt first for the honey with the comb least disturbed. This he kept in a separate bucket. The rest was dipped and spooned into other buckets and as quickly as possible the men finished the harvest, gathered the buckets, tools and lanterns and started for home leaving the bees to die and the leavings of the honey to be found by the animals of the field and perhaps the birds. A cruel thing to do, but perhaps that is part of the law of the wild.

Returning Home with the Honey

It would be a quieter group that returned, set their buckets of honey in a cool store room, cleaned up and, of course, ate of the generous lunch Mother had prepared for them, then off to bed to rest after a strenuous night's work.

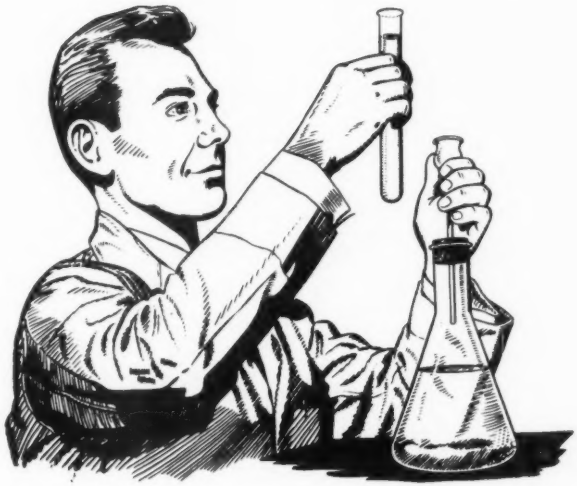
The next day Mother would take over. The best of the comb honey was put in covered crocks and jars and put away in a cool place (but not too cool. It might become sugary.) The balance was put into large pans and kettles on the back of the old coal stove and allowed to melt slowly. There would be dead bees and splinters from the fallen tree among the pieces of the comb. As the honey melted, these rose to the top and were skimmed away.

When the honey was all melted, it was strained through several thicknesses of cloth and set aside to cool. As it cooled, the melted beeswax from the comb formed a hard, yellow crust on the top. This was removed, the strained honey poured into jars, covered and set away.

None of the beeswax was wasted. After melting it again to remove all the honey, Dad would form it, while it was still warm and soft, into small loaves. This he used as grafting wax in his orchard work. Mother would reserve some of the beeswax, also. She would put a small piece of it between several thicknesses of cloth and would keep it with her ironing board. On ironing days, she would rub the hot iron (heated on the wood or coal stove) over this cloth and the melting beeswax would give a smooth surface to the bottom of the iron.

There were many uses for beeswax. The ancient beekeepers valued it highly. But that is another story.

Honey Used in Medicinal Preparations



A vast new honey market may be opening in the field of pharmaceutical preparations. The following report lists the various medicines in which honey has been used successfully as a vehicle. It also reports on the quality requirements honey producers and packers must take into consideration if they expect to supply pharmaceutical firms.

By DRS. ALFONSO R. GENNARO, CATHERINE N. SIDERI, NATHAN RUBIN and ARTHUR OSOL
School of Chemistry, Philadelphia College of Pharmacy and Science

HONEY HAS NOT been used in modern medicinal products manufacture to the extent that might be expected from the many references to medicinal uses of honey in the older literature. In present-day practice, the pharmaceutical manufacturer must be assured of the long-term stability of his products, for these may remain in distribution channels for many months before they are consumed. When a product contains fermentable sugars, as is the case when honey is an ingredient, two types of stability problems are involved: the chemical stability of the active ingredient or ingredients, and the microbiologic stability of the preparation as a whole. Very little information that may be helpful to the pharmaceutical manufacturer in answering these questions about the stability of honey-containing medicinals has been available. Furthermore, the manufacturer would want to have

assurance that successive shipments of honey would have the same, essentially uniform, quality so that his product would always be the same; for this purpose he would expect certain specifications to be applicable.

To provide the required information a two-year study of the utility of honey as an ingredient of medicinal products was performed at the School of Chemistry of the Philadelphia College of Pharmacy and Science under a contract with the U.S. Department of Agriculture.* The results of the study are briefly summarized in this paper.

Chemical Stability Studies

Vitamins - Honey solutions of the common water-soluble vitamins were studied under various conditions of preparation and storage, the vitamins being thiamine (vitamin B1), riboflavin (vitamin B2), cyanocobalamin (vitamin B12), and ascorbic acid (vitamin C). Only riboflavin, used in the form of sodium riboflavin-5'-phosphate, and a combination of riboflavin and thiamine showed long-term stability in honey solutions, when these were stored in brown bottles. Honey would be, however, an excellent vehicle for making vitamin solutions, as on a physician's prescription, that are to be consumed within two or three weeks.

Ferrous Sulfate - One of the popular iron tonics is Ferrous Sulfate Syrup, made by dissolving ferrous sulfate in sugar syrup flavored with peppermint. A similar preparation may be made (omitting the peppermint) with honey as the vehicle; this is very palatable, free of the metallic after-taste characteristic of most preparations containing iron, and stable (no change occurred in the period of 11 months during which it was tested).

Sulfonamides - The "sulfa" drugs are very important drugs, and large quantities of liquid "suspensions" of them are used. In particular, mixtures of sulfadiazine, sulfamerazine, and sulfamethazine are advantageous, and suspensions of these "sulfa" drugs in a vehicle composed largely of honey were studied. Such suspensions turned out to be very stable, easily mixed, and exceptionally palatable; honey is decidedly advantageous in these medicinal products.

Preparations for Cough - Here, too, honey was found to be an excellent vehicle. Two formulations, containing an antihistaminic agent and either dihydrocodeinone or codeine, besides other ingredients commonly used in cough medicines, were found to be palatable, stable, and effective. Honey is an eminently satisfactory vehicle for this class of medicinal products.

Aspirin - A stable and palatable liquid preparation of aspirin has long been sought and it was hoped that honey might be the long-sought vehicle. Long-term stability was not attained with any of the formulations of aspirin prepared in this study, but it was found that "extemporaneous" preparations, ideal for administration to infants and children, deteriorated to the extent of only five per cent in two days.

Preservation Against Microbiological Deterioration

Preparations of honey which contain also water are prone to deterioration by microbiological organisms. How to prevent this was one of the main problems investigated in this study. Solutions of honey and water were deliberately contaminated with various organisms - **Bacillus subtilis, Proteus vulgaris,** and **Penicillium notatum.** Of the various preservatives tested, sorbic acid completely prevented microbiological deterioration when used in a concentration of 0.05 per cent (weight-in-volume).

Quality Specifications for Honey

Various floral types of honey were used in this study, all described as having been heat-processed and filtered. Some of the samples, however, required filtration, others being so clear that this treatment was not needed, a matter of considerable advantage to manufacturers who may find filtration of honey to be a cumbersome procedure. In those instances where filtration was necessary Celite Standard Super-Cel was used as a filter-aid, in amounts of 0.5 to 0.75 per cent, and the filtration was performed under 10 to 14 pounds of pressure. The following specifications for honey suitable for use in medicinal products are recommended:

* A report of work done under contract with the U.S. Department of Agriculture and authorized by the Research and Marketing Act of 1946. The contract is being supervised by the Eastern Utilization Research and Development Division of the Agricultural Research Service.

General Description - Honey is the nectar of floral exudations of plants gathered and stored in the comb by honeybees Apis mellifera Linne (Fam. Apidae). It must be heat treated for 30 minutes [140°F.-160°F. (maximum)] and free from foreign substances such as parts of insects, leaves, etc., but may contain pollen grains. When graded according to the United States Standards for Grades of Extracted Honey (18 F.R. 52.1391 - 52.1404), it must be classified as "U.S. Choice" or "U.S. Fancy".

Moisture Content - Not more than 18.6 per cent, by weight. This corresponds to a refractive index (nD20°) of not less than 1.4900, and a specific gravity (20°/20°C.) of not less than 1.4129.

Optical Rotation - Honey is levorotatory at 20°C.

Residue on Ignition - Not more than 0.40 per cent.

Artificial Honey - Introduce 10 ml. of a mixture of equal volumes of honey and water into a test tube and add 5 ml. ether. Shake gently and allow to stand until the ether layer is clear. Transfer 2 ml. of this clear ether solution to a small test tube and add a large drop of freshly prepared resorcinol solution (1 Gm. resorcinol in 100 ml. of hydrochloric acid of sp. gr. 1.18 - 1.19. A cherry-red color appearing within one minute indicates the presence of artificial honey. Yellow to salmon shades have no significance.

Acidity - A solution of 10 Gm. of honey in 50 ml. of water requires not more than 5.0 ml. of 0.1N sodium hydroxide for neutralization, using phenolphthalein as indicator.

Color - Shall not be darker than Light Amber, when determined by use of the U.S.D.A. permanent glass color standards.

Floral Type - At the discretion of the manufacturer. (The addition of therapeutic agents to honey might alter its taste, and it appears advisable to leave the choice of the floral type to the manufacturer. Regardless of the floral type selected, the honey should meet all other specifications).

Packaging and Storage - Honey should be stored in well-closed containers, and the temperature should not exceed 90°F. for a prolonged period. Honey that has granulated may be liquefied in its container by heating at a temperature not over 160°F. for 30 minutes, with occassional stirring.

ACKNOWLEDGEMENT

The authors express their appreciation to Dr. Jonathan W. White, Jr. of the Eastern Utilization Research and Development Division of tthe Agricultural Research Service for his many helpful suggestions and other aid during this investigation.

4-H Educational Display

BRUCE McALPIN
Grafton, Ohio

OUR 4-H CLUB'S main project for last year was our educational bee display at the Lorain (Ohio) county fair. The eight members, seven boys and one girl, started to plan for the display several months before the fair.

First, a theme had to be approved and "BEES, MAN'S MOST USEFUL INSECT" was agreed on. This main title was broken down into three smaller divisions.

Pollination, most important, was stressed most. A horn of plenty was set up and spilling forth were many fruits, vegetables, and seeds all of which are pollinated by bees.

Honey, the next topic, was displayed in three different ways. A large glass-covered frame containing flowering honey plants, and the type and color of honey produced by each, was hung on one wall. Also one of our members had a very nice frame of honey. This was placed near the center of our display. Some of our members had some honey on hand and this was added to the rest of the display.

Wax, the next division, was shown in a large cake and a large sign was placed in the display stating the uses of wax.

All these items, and a few more, were set up in the Lorain County Fair Grounds, in a building devoted to 4-H projects.

I hope I have given you a little idea of the work of our club, and that it will help other clubs.

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Beekeeping Can

This is the story of Bill Doolittle, music supervisor, of the Central School Corporation of Corydon, Indiana, and hobby beekeeper with eight colonies. He gives us a look at beekeeping as he sees it.

Be Profitable

ED PREWITT
New York, N. Y.

THERE'S NO accounting for people's tastes in hobbies. Some like to fish—others play golf. Still others rush home after work to pore over their stamp or rare coin collections. But Bill Doolittle, music supervisor of the Central School Corporation of Corydon, Indiana, is never happier than when he's tending his eight hives of honeybees.

After a day of teaching 170 boys and girls to play band instruments, Doolittle spends the evenings listening to one of nature's symphonies—the soft humming of myriads of bees at work.

Beekeeping is an art, supported by various lines of scientific work, designed to encourage bees to produce honey for human use in excess of their own needs. It is an ancient art and was practiced long before the scientific basis was known. But after the invention of the modern beehive in 1851, methods of management were possible which greatly increased the productivity of colonies, and beekeeping has grown into an important business.

Although profits have never been the main attraction for Doolittle, he is now making money from his sales of honey. In one recent month he took out more than 200 pounds of surplus honey from five hives. Three of his hives are new and have not yet built up a surplus.

"Bees are a lot of fun to work with and study," he declares. "I know of no other insect or animal more highly organized in its work plans. If all the honeybees were suddenly removed from the earth, numerous plants, legumes and flowers which must be cross-pollinated to increase, would just as quickly disappear." If honeybees produced no honey, they would still be important because of the pollination services they render, he adds.

The beekeeper's season is never finished. It really begins in the fall after the bees have stopped producing honey. At this time Doolittle provides ideal winter conditions so the colonies emerge the following spring healthy and vigorous, ready for honey production. In southern Indiana the winters are usually mild, but farther north he recommends wrapping the hives with heavy roofing paper or other suitable material to insulate them and protect the bees from cold. They must also have an ample food supply to carry them through the winter.

A colony of honeybees is composed of as many as 80,000 bees during the height of the summer season living together in a cavity on beeswax combs built by the bees themselves. They are individually unable to perform normal functions, and the maintenance of the colony depends on a division of labor. Colony duties are performed by different individuals, and this is brought about by a change of duties according to the age of the individual workers.

In Doolittle's hives each comb is a double layer of cells which fit base to base so that a cell on one side impinges on three cells of the opposite side. Cells are of two sizes; the smaller, five to the inch, are used for rearing worker bees and pollen storage. The larger, four to the inch, are usually used for rearing drones and for honey storage, but they are restricted to avoid the rearing of too many drones.

"I check all my hives," Doolittle says, "to make sure there's enough room for the queen bees to lay the maximum number of eggs to insure an adequate number of workers for the following spring and summer. I also decide whether the queens are vigorous or should be replaced with new ones. And I examine all bees for diseases."

The queen bee, he explains, is a fully developed female and, after being in a colony for some time, is the mother of the other bees. Her sole function is egg laying. She normally lays one egg to a cell.

One day in early spring I visited the Doolittle apiary and saw the miracle of bee life awaken after a winter of comparative inactivity. From one of the hives a queen bee, easily recognized by her larger size and lighter color, suddenly zoomed skyward like a golden rocket. She was pursued in

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her flight by numerous drones, which are the males. Somewhere in midair the fastest drone caught his bride-to-be and engaged her in the marital embrace. Poor fellow! The drone's honeymoon journey is a one-way trip. He never returns alive.

In about 20 minutes the queen came back to the hive's entrance. On her body were fragments of her late husband which she proudly exhibited to all the other bees. They were her wedding certificate, proving her right to become their ruler. No queen was ever accorded more respect from her subjects. An escort of workers carried her into the brood chamber, which is the lower part of the hive. She will live there permanently.

Workers literally work themselves to death in about six weeks, so they demand a queen capable of laying a vast number of eggs to insure a large army of future workers. If the queen does not measure up, the workers dethrone her, sometimes killing her, and put another in her place. They are able to produce another queen any time they choose by feeding large quantities of royal jelly, a milky substance secreted from their heads, to the larvae. Full-fledged virgin queens will emerge in about 11 days.

While we watched the bees, Doolittle remarked, "It's amazing the number of eggs a strong, prolific queen will lay. I've read that a healthy queen will lay one and a half times her own weight in a day during the height of the working season. Usually that means about 1,800."

Even though there are numerous potential queens hatched regularly, Doolittle replaces old ones with mated young ones selected because of strong constitution and high fertility.

As soon as they can find food in early spring, the undeveloped female workers start gathering honey. They deposit it in sections or small boxes, each holding a pound, which fit into the top hives or supers. As quickly as the bees fill them, Doolittle puts empty supers in their place.

When clover is the principal source of nectar, bees produce very light honey. But late in the fall when they're feeding on goldenrod or buckwheat, it becomes darker. Chemists classify honey as an inverted sugar, very easy to digest.

Doolittle first became interested in beekeeping in 1938, while in his early twenties. His father had found a small colony swarming in a bush by the roadside and had cut the whole bush loose to bring them home. Doolittle's help was enlisted in getting them settled.

"I soon found myself watching the bees at work," he explains now. "Their industrious habits and highly organized sense of co-operation fascinated me. This interest has developed through the years. I not only get a lot of pleasure out of working with them, but I read everything on bees I can find."

The reaction of most people to his hobby, Doolittle remarks laughingly, is an expression of wonder that he isn't afraid of being stung. "Like most beekeepers I wear a veil contraption that is actually a wire cloth front suspended from a soft hat with a wide brim. Gloves are a comfort, but they can be more of an encumbrance at times. Usually the bees are too busy making honey to pay much attention to me."

Does Doolittle plan to expand his hobby?

"I'm more interested in increasing the unit production of honey from each hive than increasing their number. Eight strong hives are better than a dozen weak ones."

"Honey Market News" You Can Use

Honey Market News

SEMI-MONTHLY REPORT

UNITED STATES DEPARTMENT OF AGRICULTURE

In order to market honey intelligently one must have access to current marketing data. "Honey Market News" is an invaluable tool to both producers and packers.

CHARLES W. GOUGET
Glen Ellyn, Illinois

THERE WAS a time when marketing was a relatively simple process. Men brought their wares to a common market place and bartered goods for goods or goods for services. The exchange took place on the spot, and each person involved was the producer, middleman and salesman. What each person gained from the transaction depended upon his ability to produce a desirable product, his personality, and upon his ability to drive a "hard" bargain. He was dependent entirely upon himself.

Today no producer could exist for long under such a simple formula. Money has taken the place of barter as a medium of exchange, and in agriculture volume production has become necessary to remain in business. Volume production usually means that a local market cannot absorb the entire output, in which case the producer must find additional outlets hundreds or even thousands of miles away where there is a need for the product. Under such conditions the producer may never

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see the commission man or salesman, nor the organization or market that sells his product. Since the producer cannot be on the "spot" in "long distance" selling he must trust someone else called the middleman or commission man to obtain a fair market price for his product which only too often may be sold for only enough to pay for the freight. Much of this kind of selling and grief can be avoided with a proper knowledge of markets and the working of the "Law of Supply and Demand". However, reliable market facts can be obtained only through data collected by an agency properly equipped to do a thorough, scientific job. The only such agency in the United States so equipped is the United States Department of Agriculture's Marketing Service whose market reports cover most all branches of agriculture, and all of the larger markets in the United States. This is reliable "News You Can Use", and for beekeepers it is: Honey Market News, U.S. Dept. of Agriculture, Agricultural Marketing Service Fruit & Vegetable Division, 2503 S. Agricultural Building, Washington 25, D.C., Issued semi-monthly.

1. **National News:**

a. Production: Honey Market News summarizes the honey production conditions throughout the United States, that is, the conditions that affect production, such as weather, colony conditions, honey flow, condition of honey plants, the demand for honey, and the market price of beeswax. Since the commercial producer usually has expanded far beyond his own local market he is affected by national conditions much in the same way that the local beekeeper is affected by local conditions, except for the fact that the commercial producer must recognize his troubles at long distances if he hopes to plan his marketing program intelligently, and this is not easy to do. However, if he is "in the know" about the potential honey production conditions of the states into which he ships his products he is in a better position to cope with the marketing problems that may arise, and to better organize his market strategy for the season. Honey Market News provides the most reliable source of information for all national markets.

b. Markets: In addition to production news, Honey Market News lists the following market information by states: Producers' Sales Large Lots Extracted Honey to Bottlers in 60 pound Cans. Example:

State	Color & Floral Source	Prices & Basis of Sale
Calif. (North.)	Light amber, extra light amber, thistle, orange	8.5-9.0¢ Del.
	Extra Lt. amber thistle	11.0¢ Del.

Similar information is provided for all the principal honey producing states which in addition includes quotations per pound on case shipments of five pound, two pound, and one pound jars of honey with Wholesalers', Retailers' and Consumers' prices listed. This information enables the commercial honey producer to select a market that will produce the greatest return for the shortest haul for the "brand" of honey he produces. He can ill afford not to do his homework on these important, informative tables.

2. **Local News:**

Colony conditions and honey prospects are summarized for a period of two weeks for each of the larger producing states. For example:

Illinois: Frost during the middle of the period ended the heartsease flow, but asters were still yielding. Yields averaged a little less than a year ago. Quality of the crop was not as good as last year. Heartsease was abundant. Colonies are strong and very heavy for winter. Extracting has practically been completed.

Given the above information the local beekeeper may compare his local conditions with those of the rest of the state and anticipate his future demands accordingly. If his locality seems to rate above the average state production, and above the average quality of honey he is in a favored position for a strong demand and a good price for his products. In addition, this fact may mean that less salesmanship and less advertising may be necessary to move the crop, so he can plan accordingly, at least tentatively. On the other hand, if the production is good but the quality of honey is below average he may need to get his crop on the market as early as possible to avoid too much competition from better honey. Also, he may need to advertise more than usual, improve his selling techni-

ques, and even arrange to dispose of some of the honey to users of cheaper grades of bulk honey. In the honey business a little foresight may prevent a great many mistakes produced by a lot of "hindsight".

Other information included in the News Report which should have more or less general interest is the Telegraphic Reports from Important Markets for the previous two week period. Quote: The prices quoted represent sales or current quotations by brokers, local bottlers or other receivers to wholesalers and large retailers for small containers, and to bakers, confectioners or other users for 60 pound or large containers. Market condition comments represent the opinion of the trade and are for the first half of October. All quotations are extracted unless otherwise shown, 60 pound cans are on a pound basis, and smaller units of extracted are on a per case basis unless otherwise shown. Beeswax prices are per pound. Honey prices at some markets are "list" prices and are subject to various discounts. Example: Chicago: Arrivals, 221,500 pounds. Sales by wholesalers and other large users. Demand fair. Market weaker. Southern and Midwest White Clover unless otherwise stated. Extracted: 60 pound cans or larger per pound.

White Clover	13.5-16¢
Light Amber	13-14.5¢

CARTONS

6	5-lb. cans or jars	$ 5.65
12	5-lb. tins white clover	11.20
24	1-lb. jars, one lot	5.60
24	8-oz. jars, one lot	3.20
24	12-oz. jars	5.25
12	1-lb. jars	3.25

The above local information on market prices will help the beekeeper compare the prices he receives with the general wholesale market and with the prices received in other large marketing centers. If he should find that the prices he receives are lower than other local suppliers and are lower than the general market trends, then perhaps his prices should be revised upward. If he is receiving more than the general, local market prices and the demand remains good, nothing need be done about it, but if the demand remains poor, an incentive, a lower price, or more advertising may be necessary.

The above discussion points only in one direction, namely:

1. That today marketing is so complex that it is almost beyond the comprehension of the average person to understand.
2. That marketing information is valuable only when the various activities of the markets are compiled by a reliable agency, and that reliable agency is the U.S. Department of Agriculture.
3. That marketing is a science based upon the study of market conditions and activities provided by a reliable source of information.
4. Too much information, therefore, cannot be collected preliminary to a marketing campaign. The greater the amount of data and the more exact it is, the less likelihood there is of wrong decisions. You are recommended to use "Honey Market News" because it is really "News You Can Use".

Cars Kill Bees

GEORGE I. ZETLER
Duke Center, Pa.

THIS SUMMER while taking a trip through a small town in Iowa, I noticed a yard of about 30 colonies of bees situated along a small stream and about 100 yards from the highway.

The road at this point was elevated about 40 feet above the surrounding area. On first glance it appeared to be an ideal place for a yard of bees, water close and excellent wind protection.

Travel on the highway was fairly heavy and as I drove past, at about 40 miles per hour nine honeybees smashed against my windshield. How many went into the radiator or into the side of the car I can only guess, but there must have been more than were killed on the windshield, as the windshield is very sloping and most bugs tend to zip up over it.

If other cars collected as well as mine did, the queen would have to be of superior quality to keep the population of the hive on an even keel.

I Started Beekeeping on a Dare!

The author snaps his own picture with the help of a pole. He couldn't get anyone else to go near the bees.

"The bees seemed dissatisfied with their new home. I decided to make the best of a bad bargain and kill them. My wife and I thought that scalding water would be the most humane way. Soon the teakettle was boiling and I got ready to start pouring."

MAYNARD D. CURTIS
Bethel, Kansas

I BEGAN my beekeeping adventure on a dare, about 25 years ago. It was the middle of August, when a fellow pressman, at the printing company where I worked, showed me an article concerning bees which he had cut from a magazine. The interesting facts in the article fascinated me, and when my buddy suggested we send off and get us a start of bees I was all for it, but

realizing that I was inexperienced, and all that I ever remembered of bees was that they stung, I backed out hoping he would also. But not he. He kept after me and finally "dared" me to get a package along with him. I gave in, and although it wasn't a propitious time to start with package bees, we located a catalog and ordered them pronto. By the time the bees arrived we had the hives assembled and painted, and all necessary equipment on hand. The expressman delivered them to our place of business. Each of us took his package home with him.

My wife and I lived in a two-story home on busy Seventh Street, with houses close on either side. The new hive was set underneath the back porch, and I was glad that no one around there, except my wife, knew that I was entering into a dare, that even I myself did not know just what the outcome would be. I recently had purchased a book on beekeeping, and by following the instructions finally got the bees and queen in the hive, about two hours before dusk. Just before dark, I went down the back steps to see how they were coming along, and found the largest number of them on the outside of the hive. The weather was extremely hot, but I did not take this fact into consideration as a reason for the bees coming out, and the first thing that came into my mind was that the bees were not satisfied with their new home, and by morning would wreak vengeance on everyone in the block. I decided to make the best of a bad bargain, and kill them off at once. My wife was in accord, and we thought that scalding them would be the most humane way to dispose of them, and ease our troubled minds. Pretty soon the teakettle was boiling and I got ready to start pouring. I raised the kettle, but as none seemed to fly out at me, and as they seemed quiet and organized, I decided to wait until morning to kill them. I got up real early and slipped down to decide just what action to take, and to my surprise found all the bees inside, and the workers were busily flying in and out and well satisfied with their new home. With a little extra feed, by late fall, they had plenty of winter stores. I have been glad many times that I didn't kill them.

The art of Bee Culture at that time seemed so complicated, that during that winter the study of keeping bees took up a great deal of my time. With assembled hives in the living room, I would practice imaginary disease control, properly handling the frames, through the proposed Demaree method of swarm control, which proved an advantage to me the following season.

Beekeeping on Shares Didn't Work Out Well

I had a very good farmer friend who lived in southern Missouri at that time, and he prevailed on me to bring my bees down there and go into the bee business with him on shares. He said he knew all about bees because his father kept bees. We would divide the honey, and this would eliminate the danger of my neighbors being stung. Our plans were large, and we were both excited, especially when the six packages of bees and queens arrived from the south, that early spring. We hit it off pretty well together until the bees started to swarm. Swarm control in my mind was the thing to do, but with him, it was going against nature and as he put it, the more swarms we get, the more bees we get, and the more honey we get.

He being old enough to be my father, and in respecting my elders, and the bees being located on his place, and his being so adamant and stern, I reluctantly gave in to him, but not for long, as it seemed all the bees wanted to swarm that season, and before long we had more swarms than we had money to buy equipment. As I was only present over the week ends, he took things in his own hands and hived the swarms in old churns, nail kegs, apple crates, barrels and tubs turned upside down. It was the end of our partnership when he finally forbade me to use the smoker. His argument was that it was cruel to use that dreadful smoke on them, "I sit for hours," he says, "and never get stung, as I watch them work, and to torment my little darlings with smoke I won't stand for".

Partner Learns His Lesson

Although I do believe beekeepers often use smoke to excess, the bee smoker is still considered an essential tool in the bee yard. My partner was to find this out that very after-

XUM

Part of the Curtis Apiary showing fiber glass insulation and young orchard.

noon before I left for home. Some of the hives had to have more super room. He showed me how to do it without smoke. I can still see him strut out to the hive, knock the cover off with the palm of his hand, and I still see him running after me begging me to knock off the bees as they were stinging him to death. The nectar flow had really shut off, and the bees would not yield to sweet names. Although my friend has been dead for years, I learned many valuable lessons through my experience with him.

In order to make beekeeping pay, one must have training one way or another. Working with a professional bee-man is the best way. Bee literature and books come next, and don't forget the Beekeepers' Associations. The Northeastern Kansas Beekeepers' Association has helped me as well as many other members who have just started in this interesting endeavor. Someone once said that "Some folks would rather take the train, than take the training." I think this applies well in Bee Culture.

Wintering Bees

In visiting members of our association, I find many who have trouble wintering bees. I used to winter bees outside in Northern Wisconsin successfully with burlap sacks next to the hive and an outer covering of black tar paper. I would reduce the hives to not more than two stories. With a brace and bit a ¾-inch hole was bored in the top of the top super through the tar paper and hive body. No moldy combs resulted, and the bees wintered well, even in way below zero weather and five months long winter. Here in Kansas our winters are comparatively mild, and not so long. However, I still reduce my hives to two stories, and wrap them in tar paper, and always put that little hole in the top of the hive. Some beekeepers tell me they are afraid to put an upper entrance in their hives as there might be a draft which would freeze the bees. All they need to convince themselves that this procedure is profitable, is to try it once.

Last year I used fiber glass insulation which worked out very well. It is lined on one side with tinfoil, and is attached to the hives with an Arrow staple gun. I still allow the upper entrance. The pictures show how it can be applied. It can be used over and over again, as it it easily unstapled. Then too the protection the hive covering affords in protecting the hives from the winter weather is worth a lot. As fiber glass becomes better known, I believe it will become more popular as a winter covering for beehives.

School Children Enjoy Bees

G. L. JEFFERS
Glen Allen, Virginia

THE EVER-PRESENT curiosity of school children can be partially satisfied and the teaching of natural history given a helpful boost with the aid of a colony of bees. This was demonstrated in an interesting manner by the author shortly before the 1958 summer vacation.

A nucleus hive was started from several frames of brood containing some ripe queen cells on which a quantity of bees were clinging. These were placed in a six frame homemade hive body located under a dwarf tree in the author's front yard. The hive was positioned so that the entrance was clearly visible from the front porch.

In a short time the bees became accustomed to their new hive, most of the brood hatched, a queen was accepted and her potential rivals were eliminated. All occupants were busy. Nectar was plentiful and the small, satisfied colony was easy to manipulate without the use of either smoke or veil.

Upon observing the high degree of activity and the accompanying peaceful disposition of the bees, the author invited the principal of the neighboring grade school to view the colony. So impressed with what he saw, the principal arranged to have four grades, accompanied by their teachers, visit the hive at scheduled times.

Although the children were well behaved and orderly, the author met them as they approached his yard and gave them the customary warning ad-

Debbie Schermerhorn, Steve Sheffield, and the author examine a drone.

vice, consisting of such rules of conduct as not getting in the "line of flight" and doing nothing to disturb the bees. They were further informed that although their host was apparently immune to bee stings, the uninitiated could easily become sick from stings.

The children were then grouped on the front steps and porch. A lighted smoker and veil were made available. As an added concession to the very wary, they were given permission to retreat within the house if desired and view the scene from inside the screen door.

Queen Bee is Marked

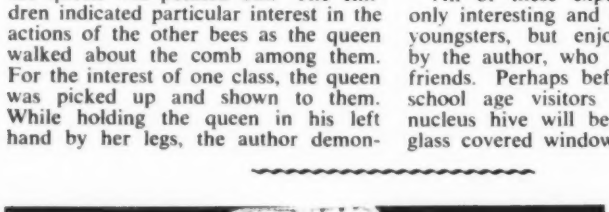
Following a few general remarks, the activities of the bees in front of the hive and those returning from the fields were explained. After removing the cover and inner cover, the interior of the hive was shown with the aid of a mirror. A frame was removed and the queen was pointed out. The children indicated particular interest in the actions of the other bees as the queen walked about the comb among them. For the interest of one class, the queen was picked up and shown to them. While holding the queen in his left hand by her legs, the author demonstrated the method of marking her back with quick drying enamel. She was then returned to the hive and the cover replaced.

Other groups were given drones with which to play. Imitating beekeepers marking queens, some grasped the wings of drones with their right hands, transferred them to their left hands where they held them by their legs and marked the backs with red enamel. The drones so marked were taken as souvenirs.

Fortunately, not one of the children was stung. The author left each group long enough to visit a strong colony and allow a bee to embed its stinger in his hand. He then returned with the bee and discussed bee stings and how to remove stingers.

Before each group of children left, they were shown samples of both honey and beeswax and informed of some of the uses of each.

All of these experiences were not only interesting and memorable to the youngsters, but enjoyed equally well by the author, who made many small friends. Perhaps before inviting more school age visitors next season, the nucleus hive will be provided with a glass covered window.



PLASTIC COMB HONEY CONTAINER

MR. H. L. LUMPKIN, Jamesport, Missouri, says he got disgusted with section comb honey so tried producing comb honey in shallow frames. He has worked out a system of cutting the comb into chunks that will exactly fit into these plastic boxes which he finally found. Mr. Lumpkin says grocers handle his honey and the public are buying it. One advantage is that the package can be placed on the table ready to serve, then it can be covered up, dust proof, while not on the table.

Research Review

DR. ROGER A. MORSE
Research Editor of Gleanings and Ass't. Prof. of Apiculture
Cornell University, Ithaca, N. Y.

The Time Sense of Bees:

A POPULAR article on the time sense of the honeybee has recently been published in Natural History Magazine and puts in popular form some research which was published a few years ago in the technical journals. The article is very well illustrated and beekeepers may be interested in obtaining copies for their own information or to use as lecture material as they have an opportunity to speak on radio and television or before various groups.

Many people will remember the research which obtained national publicity recently. Identical rooms were built in Munich, Germany and one was sent to Paris, France and the other to New York City. In Paris, bees were trained to leave a small observation hive in the room and to seek sugar syrup at the far end of the room. They were trained to pick up the syrup at a specific time of day. After several days of training the bees were flown from Paris to New York City and placed in the room which was identical to that which had been used in Paris. It was found that the time sense of the honeybee is internal and is not dependent upon external factors such as the rotation of the earth etc.

It is also stated that when bees are trained to a food source and then held at the temperature of 40 to 43°F. for a few hours that their time sense was slowed up. The reason for this was that their metabolism was slowed considerably and the internal time clock was slowed an equal amount of time.

Renner, Max.
The clock of the bees. Natural History 68:434-40. 1959.

Food Transfer within the Colony:

AN EXCELLENT review of the subject of the food transfer within a honeybee colony appears in a recent copy of the Bee World. Some of the points are listed below.

A bee's head is the most important part of its body in stimulating food exchange. Even a head removed from the body of a bee will bring about a response from other bees in the colony. Bees may sometimes attempt to obtain food from "model" heads consisting of small balls of cotton against which other bees' heads had been rubbed. In this case odor is presumed to be the most important factor.

Queens usually receive food only but when strange queens are introduced into a colony they sometimes adopt a "submissive attitude". In this case they may offer food to workers.

The amount of food which a bee has in its honey stomach does not govern whether or not it will offer or solicit food. Usually, however, those bees which offer food within the colony have more in their stomachs than those which receive it, though this is a variable factor.

The amount of nectar being brought into the hive affects brood rearing, wax secretion, and other activities. It is highly probable that food transfer within the colony actually dictates these changes. One of the most important functions of food exchange is the circulation of queen substance within the colony.

(Continued on page 753)

NEWS

The attractive display of the Northeastern Oklahoma Beekeepers' Association at the Tulsa State Fair. Mr. A. L. Lincoln, Secretary, tells us the display attracted lots of attention. Many people wanted to buy honey and wax but the members could only take orders because the display space had been donated.

Members of the Indiana State Beekeepers' Association proudly display the American Beekeepers' Federation trophy for the state with the largest increase in Federation membership. They are left to right: Gilgert Perigo, Sec., Dr. Montgomery, Prof. of Beekeeping, Forrest Nicholas, Membership Chairman, Paul Champ, Pres., T. M. Hawley, Speaker, Earl Huff, L. R. Stewart, Directors.

REEL

Kay Seidelman, American Honey Queen gives national prize winning honey to Earle Chesney, Executive Assistant to the President, who will in turn present it to President Eisenhower. Kay spent two days in Washingtoon, D. C. and made this presentation on October 28th as a climax to National Honey Week. Harold Clay was Kay's official escort during her stay in Washington.

Newly elected and re-elected officers of the Hoosier Honeys (the Indiana Ladies' Auxiliary). They are from left to right: Mrs. L. R. Stewart, Vice Pres., Mrs. Paul E. Champ, Pres., and Mrs. Ray Shuler.

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Editorials

Congratulations!

GLEANINGS CONGRATULATES the American Bee Journal as it approaches the 100th anniversary of its founding. Vol. 1, No. 1, January 1, 1861, was published by A. M. Spangler, "Book and General Job Printer", Philadelphia, Pa.

The opening sentences of page 1 sounded an optimistic note. We quote, "Bee Culture need no longer be a precarious and empirical pursuit. Discoveries and improvements comparatively recent, have so elucidated its principles, that its processes can be more definitely regulated than those of almost any other branch of rural economy."

A. I. Root writing under the nom-de-plume of Novice was an early and prolific contributor, his first article appearing on page 171, 1867.

May success attend the good efforts of the editors of this first U. S. bee magazine for at least another 100 years!

Less Honey Produced

THE GOVERNMENT estimate on the amount of honey produced in the 1959 season indicates a reduction in the United States of 7% under the previous year. The estimated 248,000,000 pounds is slightly above the ten year average of 242,000,000 pounds.

The honey crop in areas other than the west was up this year approximately 10%. The western states, on the other hand, dropped roughly 40%, with California dropping from 44,000,000 pounds in 1958 to 16,000,000 pounds this year. Most of the other western states showed some reduction also, with the exception of Montana and Oregon which showed slight increases. The states showing the greatest increase this year were Ohio, Indiana, Michigan, Iowa, and New York.

The Commodity Stabilization Service of the U.S.D.A., reporting on honey price support, shows a marked improvement in honey under loan compared with 1958. This year there are 28 lots of honey totaling 693,000 pounds under loan agreement against 67 lots of honey totaling 2,033,000 pounds last year. The amount of honey under the loan agreement at the moment compares very favorably with 1957 and 1956. Honey seems to be moving better than a year ago.

American Beekeeping Federation Deserves our Support

AGRICULTURE IS AN important segment of our economy. Beekeeping is an essential branch of Agriculture, mainly because honeybees are needed for pollinating over 50 farm crops including legumes, fruits and vegetables. Honey gathered by the bees is a healthful and delicious sweet.

Every branch of agriculture needs to be organized. The American Bee-

keeping Federation representing the beekeeping industry is very essential and needs the support of all beekeepers. Possibly some beekeepers are not conscious of what the Federation is doing for our industry.

First of all the Federation represents our industry in Washington. For example, legislation important to the future of our industry was introduced during the present year and beekeepers will have to decide at the National Meeting held in Phoenix, Arizona, January 13-15, if we should make an effort to get it passed in 1960.

The Federation sponsors the annual National Honey Show which does much to increase consumer interest in honey among the thousands of people that attend these shows. This is one good way of getting honey before the public.

The Beekeeping Federation helped to sponsor a booth at the American Home Economics' Convention. This brings honey to the attention of a group which has influence over the eating habits of our nation. Over 4,000 people attend this convention each year.

The Federation is also interested in sponsoring optional group insurance plans for beekeepers. Such insurance covers theft, loss of bees and equipment in transit, etc.

Joseph O. Moffett, Secretary-Treasurer of the American Beekeeping Federation, answers many letters from beekeepers over the country concerning our beekeeping industry.

The Federation is now issuing a 12 page Federation News Letter every two months which contains pertinent information concerning what is going on in our industry. Every beekeeper owes it to himself to keep well informed on such matters.

And last but not least, the American Beekeeping Federation sponsors a national annual convention which calls together leaders of our industry and beekeepers from over the nation as well as some foreign countries. Beekeepers from over the country should meet at least once a year to help solve some of the industry's problems and to formulate plans for the future.

Since beekeeping is so essential to agriculture and to our national economy we urge beekeepers everywhere to give the American Beekeeping Federation your financial and moral support. For further information write Joseph O. Moffett, 115 South College Avenue, Fort Collins, Colorado.

"Time Sense in Bees"

THE ITEM UNDER the above caption appearing in Research Review, this issue, page 733 reminds us of an incident that occurred some years ago.

At that time The Root Company maintained a queen rearing yard a short distance from Medina. Weather conditions during a part of that summer were unfavorable for normal nectar secretion and it became necessary to feed sugar syrup to the bees in the queen rearing yard. We tried what is called outdoor feeding which consisted of pouring sugar syrup into a long trough a short distance from the queen yard. The operator of the queen yard was quite systematic and punctual and made a practice of feeding the bees at 1:00 P.M. each day.

One day the writer happened along at 1:00 P.M., just as the apiarist was carrying a bucket of sugar syrup from the apiary house to the feeding trough. As already mentioned, the feeding place was some little distance from the bee yard but during the dearth of nectar it didn't take the bees long to locate the source of their food supply. As the apiarist was carrying the bucket of sugar syrup to the feeding trough a swarm of bees hovered around him as he emptied the sugar syrup in the trough. None of the bees offered to sting him but began immediately to fill their sacs with syrup from the feeder. It was interesting to see the bees lined up along the edge of the syrup on each side of the trough. The bees took up the syrup and carried it to their hives as long as the source of supply lasted, then returned to their hives. However, the bees were on hand at the feeding place punctually at 1:00 P.M. the following day.

It would appear that honeybees have a sense of time that humans do not possess. Some people say that they can wake up at a certain hour without using an alarm clock. Most of us need an alarm clock.

Live and Learn

PROPOLIS PETE

EVERY YEAR, about this time, half a dozen beekeepers ask me what they should do about wintering. So, if you don't mind, I'll speak my piece again. If you don't want to read it, it doesn't take much effort to turn the page.

To begin with, wintering is something that can cause more arguments than anything else I know of, between beekeepers. One of the reasons for this is that there are no two situations that are exactly alike, and furthermore, if left to themselves, the bees can do a pretty good job of it alone. Many times bees winter well, not because of what you do for them, but in spite of what you do to them.

Pretty nearly everyone will agree that the basic requirements for good wintering are: Plenty of stores, a good sized cluster of young bees, and a vigorous queen, plus some provision for eliminating the moisture that will condense on the sides and top of the hive under certain circumstances. What constitutes providing these things is what causes most of the arguments.

Fashions change in beekeeping, just as in everything else. Grandpa did it this way and made out all right. Grandson goes to the other extreme, and seems to make out just as well. Given these extremes, it seems reasonable that somewhere in the middle is an ideal situation that will provide greater rewards for the time consumed.

Really, you have to work out your own salvation. But remember when you are doing it, that it is far more profitable to err on the side of abundance, rather than by skimping.

Where I keep my bees, we have a moderate climate. The active season is from April through October. Of course the bees start to prowl in March, and you will see pollen coming in even late in November, but they really start when the crocus and early maple bloom. In mid-winter here the thermometer might go to zero, or up into the 60's. The average through the winter is around 35. There have been stretches where the bees didn't have a flight for five or six weeks, but on the other hand there have been winters when they had at least short flights nearly every week.

Wind is a Problem

There is a 20 mile stretch on the northwest with nothing to stop it from whooping it up, and brother there are times when it does just that. A 40 mile wind at 20 above zero is a lot more uncomfortable than 20 below in a calm. So, how do I winter?

I take my honey as soon after August 1st as I can get at it. Whatever the bees make from then on is theirs. Usually a normal colony has a vast plenty. I wrap a single sheet of tar paper around the three windward sides, leaving the southern side exposed to the sun. I don't pack the sides, but fold three burlap bags between the inner and outer cover. I crack the seal between the inner cover and the hive body, and shove a shingle nail in there to keep a little crack for moisture to escape. I bore a ¾-inch hole just below the hand hold of the top body for emergency exits, and put the four inch opening of the standard entrance closer right side up at the bottom. That's all I do for the bees. There is a natural thicket to temper the wind on the northwest side of the row of hives, and on the southwest I put up a hundred feet of ordinary snow fence. You would be surprised at the gentle zephyrs at the hive level, whereas there is enough wind to blow off your toupee when you stand up. On top of the whole pile is a cement block.

How do I make out? I have my losses in instances where I misjudged the size of the cluster or the weight of the hive. Also, some queens look good at the last inspection, but peter out when the season starts. On the whole though, I think I do pretty good. Generally every colony comes through alive, but sometimes a few are so weak that they are used as switches when a buster of a colony gets ideas about swarming.

I don't think that more protection would improve things. The cost in material and labor the way I do it is so small that even a big professional could afford it. I can't quote figures to prove my point, but I know that I do a lot better than others who use either more or less ritual than I do.

Madrona tree (Arbutus texana).—Photo by Harvey Lovell

Let's Talk About HONEY PLANTS

DR. HARVEY B. LOVELL
University of Louisville,
Louisville, Ky.

Madronas. In a second letter Captain L. W. Bundy of Langley, Washington, discusses madrona (**Arbutus menziesii**) as follows: "They are customarily found in all the coastal areas of the Pacific from Canada to Mexico. They prefer a deep gravel soil where the roots may penetrate to great depth. They are very slow growing, have a heavy dense wood, a peeling bark, and the bees love them. Blooming in late May or early June in years as the season varies, their blossoms are heavy clusters on which the bees work with great eagerness. If the season is wet the honey is a pale golden with a lemon

yellow tint, or if dry, the honey is a light amber. Except when the weather turned overly cool after the blossoms opened, I have never known them to have a poor nectar supply. Much of this honey is used in brood rearing unless immediately taken from the hive. In a "fair" location I have had a gain in weight of eight pounds in a day from madrona in a hive of average bees. The nectar, except in dry years, has a high moisture content. A wonderful heady perfume is produced by the hives that are working to evaporate it, an unusual fact since the blossoms themselves do not have any remarkable fragrance. The honey granulates in a few weeks after extraction."

Scullen and Vansell (**Nectar and Pollen Plants of Oregon**) write of the madronas as follows: "Usually the flowers are too deep for the bees. The nectar is thin, 9-21 per cent sugar. The species is abundant in the granite soil of Rogue River Valley where it may be of some value".

G. H. Vansell and J. E. Eckert (**Nectar and Pollen Plants of California**) have a photograph of madrona and report that "This rather striking tree is reported of value for honey in the Sierra Nevada foothills and from Santa Cruz County northward along the coast into Oregon. Its blossoms much resemble those of Manzanita (or those of the blueberry). The honey is said to be of excellent quality."

Coleman described the honey (**Western Honeybee**, October, 1921) as light golden amber with a very heavy body and a delicious woodsy flavor, which easily distinguishes it from all others.

According to J. H. Lovell (**Honey Plants of North America**) "there are 10 nearly transparent nectaries in a circle at the base of the corolla."

I found madrona still in bloom in the mountains of Big Bend National Park in southwest Texas in July a few years ago. The bark of the young trees is crimson or terra cotta and the evergreen leaves are thick and glossy. The white flowers are urn-shaped with a narrow mouth through which bees had to get the nectar by using their long tongues. This shrub belongs to the heath family, or Ericaceae, a family noted for its ability to grow in sterile acid soils on hills and mountains (see photo).

Dr. W. E. Dunham of Ohio State told me the following story when I visited his honey stand recently. A man came to the stand with a bad case of hay fever and purchased some comb honey. He opened the section and turned to Dr. Dunham and said, "Now watch what happens when I eat some honey in the comb." He immediately ate a generous helping and within five minutes his nose stopped dripping and all external signs of the hay fever vanished as if by magic. Dr. Dunham admitted that he had been skeptical, but in this particular case at least, seeing was believing. Other sufferers have tried comb honey without success but for a select few, it appears to be an easy and pleasant way of alleviating most of the symptoms.

Sourwood. In a recent letter W. A. Stephen, extension beekeeper in North Carolina bemoaned the bad season with sourwood. He writes, "We are beginning to wonder whether sourwood honey may be a thing of the past. During the past three years I have carried on a demonstration with a beekeeper in the western part of North Carolina building up the colonies and using every method possible to get them in tip-top shape for sourwood, only to have none produced. It is quite disappointing and you could appreciate that if a beekeeper were dependent on this for his only income, he would simply be out of business." Anyone who has produced sourwood honey during the last three years please write and tell me how you did it.

Honey-Bee Flower. Fred Schwoebel, curator of the Langstroth Bee Garden in the Morris Arboretum at Philadelphia, wrote me that he has growing in the greenhouse a plant from Western China called Honey-Bee Flower (**Rohmannia angulata**). Ernest H. Wilson, who discovered this plant, writes that it abounds in rocky places and terraced fields. Plants only two feet tall have six or more large, rosy-pink, foxglove-like flowers. The local name is "Feng-tang Hwa" which means honey-bee flower. Unfortunately, according to Mr. Schwoebel, this plant is not hardy in Pennsylvania and must be kept indoors in the winter. This is another of an amazingly large number of plants which have honey or honey bee as part of their names.

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DECEMB

Luscious honey muffins for the folks on Christmas morning.—Courtesy Kellogg Co.

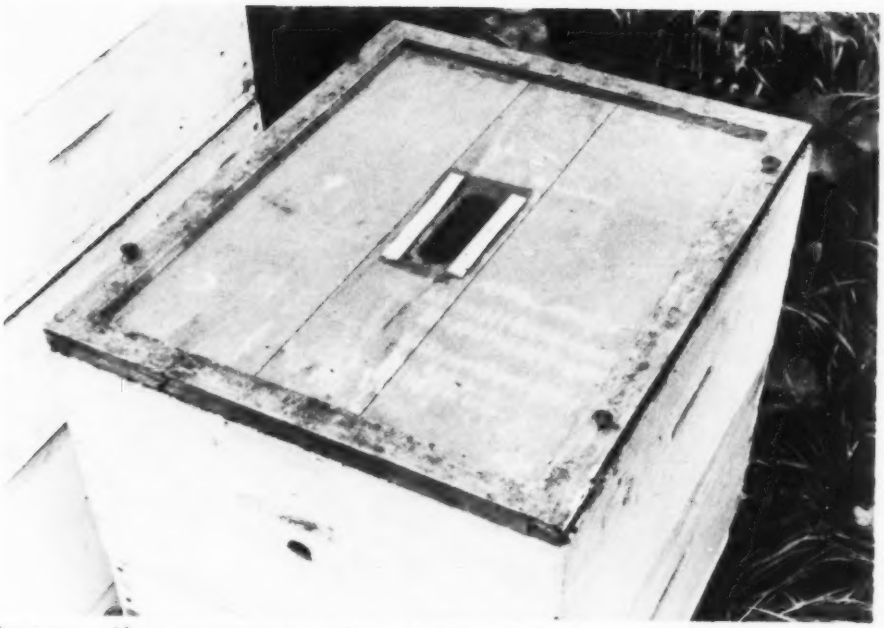
Merry Christmas, Folks

MRS. BENJ. NIELSEN
Aurora, Nebraska

MOTHER WORKS so hard and long preparing everything for the Christmas festivities. Of course, she is honey-minded so she can prepare many goodies ahead of time, assured of improved flavor and goodness; but there are always just so many last minute things to do. Dad's headaches begin when bills roll in around New Years. So—how about a nice surprise for the folks on Christmas morning? Some luscious, piping hot honey muffins and steaming coffee on a tray brought right to your parents' room? A sprig of holly, some red napkins, or a fat candle on the tray. Or, if your folks just are not the breakfast-in-bed kind, even for one special day of the year, serve at a gayly decorated table. Wouldn't that give Mom a big lift for the day? And, anything that makes Mom happy pleases Dad, too.

Not enough time early in the morning? Well, you can find a few minutes when Mom is out or busy elsewhere.

(Continued on page 760)



Inner cover with screen over center opening and roofing nails in rim.

50 Years of Wintering Bees

Bees can stand lots of cold if kept dry.

GROVER PFISTER
Deputy Apiarist

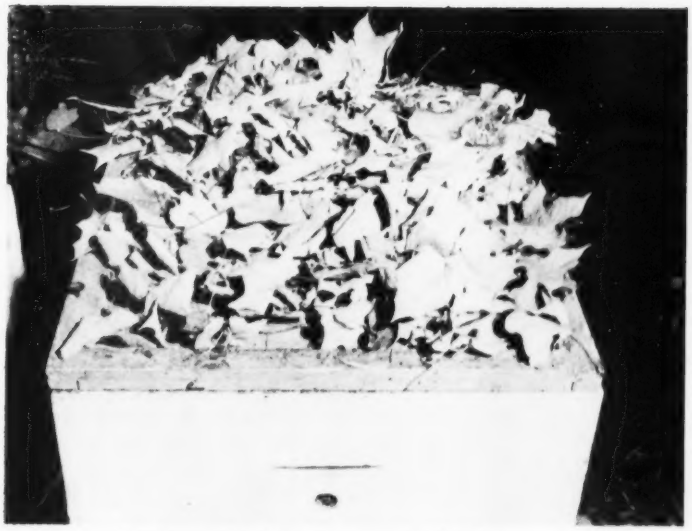
IN THE 20's I used to pack in wooden cases with sealed covers with no provision made for moisture to get out at the top part of the hive. The result was wet and moldy combs and heavy losses of bees in severe or cold winters.

In the 30's I started providing more top ventilation and got better results even with packing on the sides and ends of hives.

In the 40's I discontinued packing the sides and ends of hives and gave more top ventilation and insulation with better results. The method I have been using the last 10 or more years is as follows:

I use inner and metal covered telescoping outer covers. I cover the opening in the inner cover with a piece of fly screen around November first. By then the bees are not liable to cover the screen with propolis.

The outer covers are elevated or separated from the inner covers so there will be a space of ⅜ to ½ inch between the rim of inner cover and outer tele-



Dry leaves placed on inner cover to absorb moisture and provide some top insulation.

scoping cover. This is done by ¾ inch roofing nails driven part way in the rim of the inner cover. Three-eights inch wooden blocks can be used if desired.

By keeping the two covers separated, moisture or moist air that might condense in the top part of hive will escape through the opening in inner cover, keeping the top part of hive and bees dry. That is one of the secrets of good wintering of bees learned from experience. Bees can stand lots of cold if kept dry.

Use a few handfuls of dry leaves between covers for insulation and to prevent drafts. Moist air will escape or filter through the leaves and the leaves will not get wet if packed rather loosely and if covers have at least ⅜ inch space at the rim. This opening is very important.

In the spring the leaves can be taken out and that provides a space between covers for air circulation in summer and will discourage ants from occupying or nesting in space between covers.

With the present method I winter bees nearly 100 per cent, have lost very few colonies even in very severe winters. We have had several very cold winters in the last 10 or more years.

Other important provisions are good clusters of young bees, plenty of good stores of honey and pollen. Use food chamber hives with ¾ inch hole bored below hand hold of second story, for top exit or entrance for extra safety. Reduce bottom entrance to about ⅞ by 4 inches.

I worked out this system during the time I worked at the Ohio Experiment Station for over 25 years.

Colony in food chamber hive with ¾-inch auger hole in upper story and restricted lower entrance —ready for winter.

SAINT AMBROSE

is a Saint for beekeepers

Feast Day—December 7

CHRISTMAS TIME

HARRIETT M. GRACE
Director, American Honey Institute
Madison 3, Wisconsin

YOU WILL emphatically agree that you are busy—busy personally with Christmas shopping, gift wrapping, home decorating, party planning, and program practicing, busy on the job engineering your work through another season of Christmas advertising, sales, traffic, and the record-breaking postal rush.

You will also agree that you are not too busy to consider seriously how the Christmas story after nearly two thousand years offers a much deeper influence on your life—an impact that can leave you with new hope, new inspiration, and a new sense of values.

Christmas can give

Hope in the reassurance that Christ's leadership helps you live a rich life.

Inspiration that will encourage you to live a truly good life patterned after His.

A Set of Values to help you distinguish the temporary from the permanent, the trivial from the important.

Scope to your spirit of generosity so that you give others not only material gifts but the gifts of understanding, patience, kindness.

Strength to your family unity to make it a real force in facing future problems.

Vitality to the significance of religion in your life to carry you through the years.

Yes, Christmas can give you all these for the taking. It is the Christ Child's gift to you. May you enjoy the abundance of this blessing and so know the real impact of Christmas in your life!

The 1960 Florida Honey Queen, flanked by admiring old and new State Association officers. From left, Past President, David C. Phillips of Clearwater, congratulates new President, Felix Uzell of Sebring. New Honey Queen, Patricia McGinnis of Edgewater. New Vice President, F. L. Steely of Homestead, and Secretary-Treasurer for past four years, Prof. F. A. Robinson of Gainesville.

The Florida Convention

HENRY J. RAHMLOW
St. Petersburg, Florida

FLORIDA BEEKEEPERS met in Tampa on October 22-23 for their 39th annual convention.

It was my first Florida State Convention and I was interested to see how it compared to the 25 or more annual state meetings I had attended in Wisconsin and neighboring states. I was impressed with both the program and the caliber of the men taking part.

This was not a meeting of amateurs to learn how to best light a smoker or find the queen. Those topics are reserved for local meetings as there are bigger problems confronting the industry both regionally and nationally which can only be solved at state and national meetings.

The Florida Association drew heavily upon its state experiment station staff for its program in order to get the latest results of scientific research. In this field Florida is one of the leaders in the number of scientists devoting part or all of their time to problems affecting beekeepers.

A Few Highlights

President Dave Phillips in his opening address said that the new book by Jarvis, "Folk Medicine", which lauds honey as a natural food has increased his sales 25 per cent. At least 100 people have asked him for certain kinds of honey especially dark honey.

Prof. Jim Brogdon, Entomologist, said that while a number of insecticides

and fungicides are not poisonous to bees and small citrus growers can cooperate by not spraying during bloom, the large operators and co-ops have so much acreage to cover that they start spraying early—often with Parathion, which is fatal to bees if they are working on the flowers.

Bear Trouble

In some rural areas of Florida bear damage has been serious—one beekeeper reporting 70 colonies destroyed in one yard. Prof. A. M. Pettes, Extension Engineer, showed pictures of a bear-proof electric fence six feet high. Barbed wires were eight inches apart and every other one was electrified—the others grounded. Opinions expressed by beekeepers were that a fence is very expensive and complicated—best way is to get rid of bears, which is not easy either.

Mr. Millard Coggshall of Minneola discussed the proposed Honey Marketing Enabling Act before Congress. He said beekeepers were not proposing a marketing agreement now but the Enabling Act should be passed to permit them to do so whenever the need was imperative. He pointed to the benefits the citrus industry has had from a Federal marketing order — proposed and voted by the growers themselves. A resolution was passed favoring the Enabling Act.

Prof. Frank Robinson, Entomologist, spoke on pollination research. He said certain varieties of oranges, notably Tangelo, require cross-pollination and are greatly benefited by the presence of bees. He had also tested spray repellents which seem to repel only while other nectar is available.

Prof. H. G. Hamilton of the Agricultural Economics Dept., Univ. of Florida, said that nationally beekeepers produce from one-half to two pounds of honey per capita depending on the season. Florida consistently produces more than that and supplies about one pound per capita to the people of Florida. In 1955 Florida honey was sold in 28 states.

The Royal Jelly Research Foundation was discussed by Mr. Garnet Puett of Hahira, Georgia. Honey exporting was discussed by Mr. F. A. Mattuat of R. B. Willson, Inc., of New York. He said that Germany is the largest importer of honey and annually buys 70 to 80 million pounds. Their consumption per person is about twice as much as ours. They will buy only very good honey, not filtered, as filtering takes out the vitamins and minerals.

A honey marketing panel with Dr. Ralph Eastwood of the Agric. Extension Service as moderator closed the discussions. Six leaders in the field of marketing and production discussed briefly topics they considered most important.

The Convention closed with a honey tasting contest and a demonstration on the uses of honey by the County Home Agent, Mr. C. Wade, President of the Tampa Bay Dist. Association, and Prof. John Haynie, Extension Apiculturist. A number of dishes, including honey-baked ham, cakes, bread, cookies, spreads and a drink all made with honey were discussed and served. Visitors were presented with a jar of honey and the bulletin "Honey in the Home" by the State Agric. Extension Service.

All in all it was an enlightening program. We did miss, however, discussions on honey production for the benefit of the hard working beekeepers. I still believe, as I found to be true while producing honey, that increasing the per colony production of honey is the most profitable thing a beekeeper can do. Nor have I seen any evidence that as beekeepers, we know all the answers to our production problems. The U. S. Bee Culture Laboratory has been doing a lot of research on improved production methods and the results should be made more widely available to beekeepers.

"I'm not sure they like working day and night!"

A Talk To Be

DURING THE YEARS I have had the opportunity of traveling through all but three of our states, Arkansas, Alaska and Hawaii. I have flown over Arkansas a number of times. If that state owns the atmosphere above it, please tell me whether or not I have been in Arkansas. At any rate I have never set foot on Arkansas soil.

I have wished that I could keep bees in some of the states through which I have traveled. Most of us are rather provincial in our beekeeping. We imagine that the system of management we use can be applied in most of the other states. If we move to another state we might have to revise our methods of apiary management.

More Stores Needed in Western Ohio

Some years ago the Root Company had between 300 and 400 hives of bees in western Ohio. I soon learned that the management or hive manipulation used in northeastern Ohio would not work in western Ohio. Some beekeepers in eastern Ohio and western Pennsylvania who moved their bees to western Ohio learned from sad experience that it is necessary to reserve a larger amount of summer honey for winter stores. If the bees do not have plenty of stores, they may starve in early spring.

Here in northeastern Ohio where goldenrod and aster grow in abundance, bees fill up their brood chambers in the fall. Sometimes however, a fall flow may fail to materialize, although I have found this occurs very rarely.

In western Ohio, at least in the Sandusky county where we had our bees, they would make a scant living during the late summer and fall months and it was necessary to reserve a full super of summer honey for each colony. During recent years aster has furnished some nectar during the late fall in that area.

Around here, as already stated, we can usually count on a fall honey flow and some surplus honey. This year most of the fall surplus came from goldenrod. We had hoped for an aster flow to follow the goldenrod, but it did not materialize because of cool weather. Some years we get practically no honey from goldenrod but during such years we usually do have a heavy aster honey flow.

This small apiary owned by Edmund H. Hamann, Riverside Conn. is ready for winter. The hives face sou stone wa

Wintering in Single Story Hives

Just recently I attended a meeting in an adjoining county and one of the beekeepers mentioned wintering his bees in single story brood chambers. He said his bees always wintered well. He just lets the bees fill up the single chamber with honey for winter. He might have something. It stands to reason that a single story hive should be warmer than a double story hive, because there is not as much space to heat in a single story hive as there would be in a double story hive.

I would suppose that the queen would be restricted in her egg laying during the late fall months in a single story brood chamber, especially during a heavy fall flow. This being the case there would not be as many young bees in the winter cluster as there would be in a double story or food chamber hive. A few years ago I tried out one or two single story colonies for wintering and the results were so poor that I did not try it again. I still believe in and prac-

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To Beekeepers

M. J. DEYELL

face south and are wrapped in tar paper. A stone wall and a row of hemlocks break the wind.

tice wintering in two story hives. A food chamber hive, when well filled, is likely to contain an ample amount of honey and pollen for winter and early spring stores.

Grandfather's Bees

When I was a youngster I used to visit my grandfather's home and watch him, at a distance, manipulating hives of bees. He had a mosquito netting over his head and tucked in around his coat collar. I believe he must have used the Jones hive with practically square frames fitting crosswise of the hive. His bees were anything but gentle. This may have been due partly to the careless way he handled them. One of the carpenters working on a house nearby got stung.

One Sunday evening while I was at grandfather's, a neighbor boy came along and started to dance a jig on top of one of the hives. Naturally the bees resented this behavior and stung him in the face and he was badly disfigured for a few days. It was good for him, as he was sort of a "smarty". He kept his distance from the bee yard after that.

I can well remember the delicious clover and basswood honey. Grandmother used to serve the honey in green glass desert dishes. Even now, I imagine honey tastes better in a green dish than in a white dish. Whenever I go back to Ontario for a visit I enjoy the delicious white honey produced in that area. It has a flavor different from any other honey I have ever tasted. Perhaps this is my imagination.

Honey for Sleeplessness

The other evening one of our elderly neighbors complained about not being able to sleep after he went to bed. I suggested that he take a tablespoonful of honey just before retiring. I gave him a jar of honey and he said he'd follow my suggestion. About a week later he told me that the honey taken at bedtime had caused him to drop off to sleep practically as soon as his head hit the pillow. Of course, he might have dropped off to sleep if he had not taken the honey. I do believe, however, that honey taken just before retiring does help to induce sleep. As a rule I do not have any trouble getting to sleep but sometimes my mind becomes active during the night and I think of practically everything under the sun and am as wide awake as an owl. Some of you readers who are not as young as you used to be may have had a similar experience. Just take a full tablespoon of honey and see what happens.

Occasionally I fail to roll out of bed when the alarm goes off and consequently do not eat a full breakfast. By the way, I know some do not eat breakfast. I am not sure why, whether it is to economize on food bills, or that they think they are healthier because of skipping breakfast. I know that if I do not eat a good breakfast I experience a weak or listless feeling around 10:00 or 10:30 in the forenoon. Whenever I have this feeling I take a few swigs of honey from a bottle I keep in my office and this seemed to give me needed energy.

Honey is a carbohydrate, an energy food and at this point I am going to quote from the pamphlet entitled "Honey" put out by the American Honey Institute of Madison, Wisconsin: "Cane and beet sugars must be broken

(Continued on page 759)

NEWS and EVENTS

WYOMING
State Beekeepers' Association
Worland, Wyoming
December 4th and 5th

The annual meeting of the Wyoming State Beekeepers' Association will be held December 4th and 5th at the Washakie Hotel in Worland. The main topic for discussion will be Marketing Orders. Featured speakers will be Mr. Ken Bradshaw of Wendell, Idaho, Mr. John Hotchkiss of the Bee Culture Laboratory at Laramie, Wyoming and Mr. Frank Swanson of The A. I. Root Co. of Iowa, if able to attend, also the Wyoming State Commissioner of Agriculture, Mr. Bill Kirk. — Walter M. Fliegner, Sec.-Treas.

DR. D. F. PEER
Newly Appointed Assistant Professor in the Department of Entomology at the University of Wisconsin

Dr. D. F. Peer has been appointed Assistant Professor in the Department of Entomology at the University of Wisconsin. His research and teaching responsibilities will be closely coordinated with the U.S. Bee Culture Laboratory at Madison under a cooperative agreement between the Entomology Research Division, Agricultural Research Service, U. S. Department of Agriculture, and the Wisconsin College of Agriculture.

Dr. Peer received his undergraduate training under Professor G. F. Townsend, Ontario Agricultural College. He was a recipient of the F. Eric Millen award in apiculture at the Ontario Agricultural College. He entered the University of Wisconsin graduate school in July 1951 and completed the requirements for the Ph.D. degree June 1955. His thesis dealt with both the foraging and mating range of the honeybee.

In October 1954 he joined the staff of Dr. C. A. Jamieson of the Bee Division, Canadian Department of Agriculture at Ottawa. In March 1956 he left Ottawa to engage in commercial beekeeping at Nipawin, Saskatchewan. He undertook commercial beekeeping to determine the economic opportunities and to broaden his insight into the problems of the industry as further training for a professional career in apicultural research and teaching. Dr. Peer returns to Wisconsin with an outstanding background in both technical and applied apicullture.

Heard in Office Building Elevator

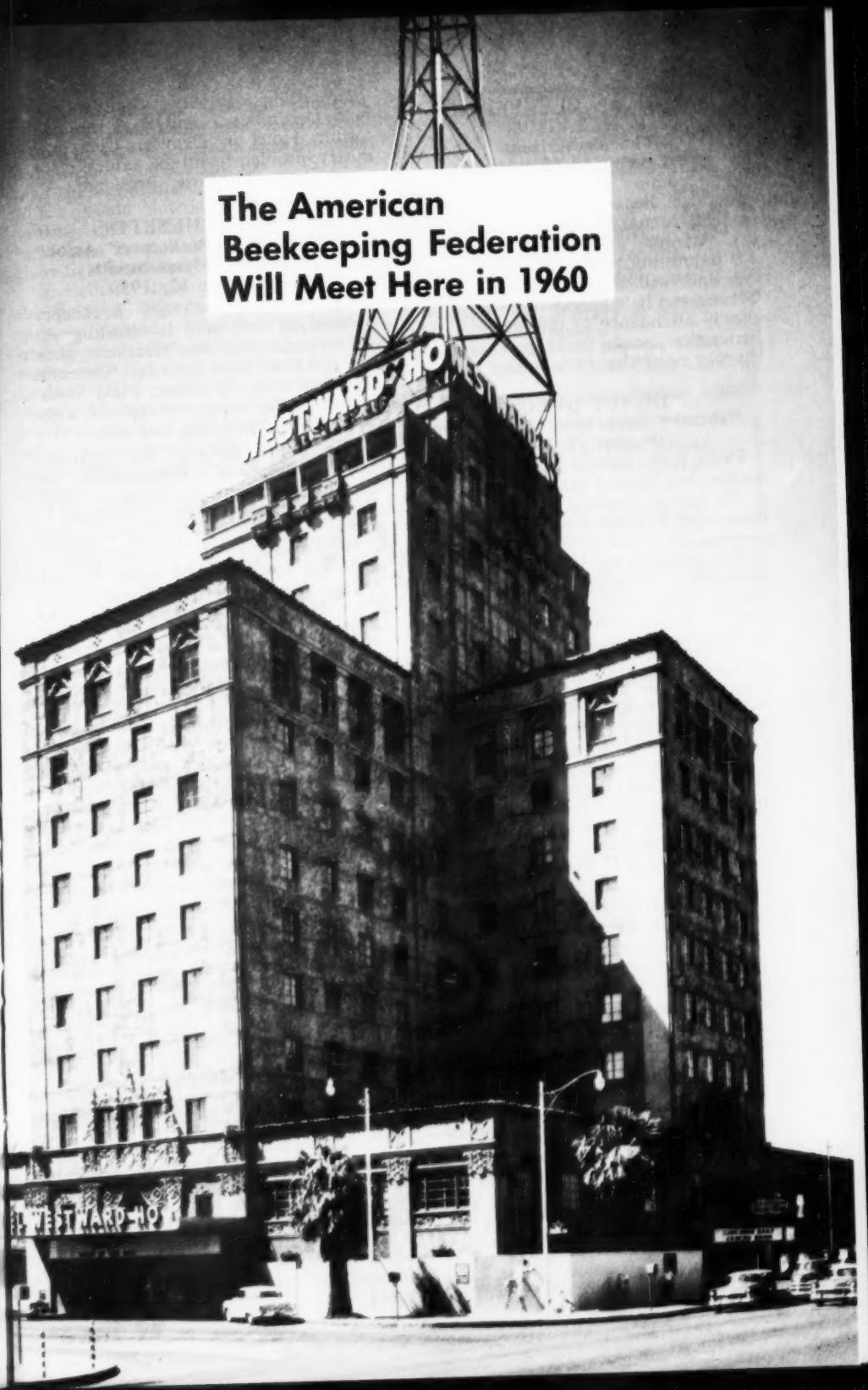
"The only time I believe in re-incarnation is at 5 P.M when all the dead people come to life."

MONTANA
State Beekeepers' Association, Inc.
Bozeman, Montana
December 1, 2, and 3

Montana State Beekeepers Association, Inc., will hold its annual meeting in Bozeman, December 1, 2, and 3. Headquarters at Baxter Hotel. Banquet to be on December 2. Important questions will be presented for beekeepers' decisions, regarding beekeeping in Montana. All Montana beekeepers should be present.—Mrs. O. R. Burdett, Sec'y.-Treas.

ALABAMA
Beekeepers' Association
Montgomery, Alabama
December 4-5

The Alabama Beekeepers' Association will hold its annual meeting at Holiday Inn Hotel in Montgomery December 4-5. A cordial invitation to all.


The American
Beekeeping Federation
Will Meet Here in 1960
WESTWARD HO

AMERICAN BEEKEEPING FEDERATION
Phoenix, Arizona
January 13-15, 1960

The coming annual meeting of the American Beekeeping Federation will be held January 13-15, 1960 in Phoenix, Arizona, at Hotel Westward Ho. An interesting program is in the making and will appear in the January Gleanings. It is hoped there may be a goodly attendance at the meeting. The Federation needs beekeepers and beekeepers need the Federation.

HONEY QUEEN
Nebraska Beekeepers' Association
October 29, 1959

Doris Robertson of Mason City, Nebraska, was named State Honey Queen at the annual meeting of the Nebraska Beekeeepers' Association in Lincoln, October 29.

New officers are Charley Moosman, Valentine, president; Willard Still, Broken Bow, vice-president, and Mrs. DeEtta Bellin, O'Neill, Sec. — From the Omaha, Nebraska "World Herald".

MIDWESTERN
Beekeepers' Association
Kansas City, Mo.
December 13, 1959

The Midwestern Beekeepers' Association will hold its regular monthly meeting in the I.O.O.F. Hall, 812 Westport Road, Kansas City, Missouri, at 2:30 P.M., Sunday, December 13, 1959. — Carroll L. Barrett, Secretary.

MINNESOTA
Beekeepers' Association
Minneapolis, Minnesota
December 5, 1959

The regular annual meeting of the Minnesota Beekeepers' Association will be held at the Curtis Hotel in Minneapolis on December 5th, 1959. The program will start at 9:00 a.m. An evening banquet has been arranged with special entertainment. Everyone interested in beekeeping is welcome. —George McReynolds, Sec.

COLORADO
Beekeepers' Association
Denver, Colorado
December 7 and 8

The annual convention of the Colorado Beekeepers' Association will be held December 7 and 8 at the Auditorium Hotel in Denver. Current industry problems will be under discussion. — G. H. Rose, President.

MASSACHUSETTS
Middlesex Co. Beekeepers' Assoc.
Waltham, Massachusetts
December 12, 1959

The Middlesex County Beekeepers' Association will hold its meeting with a Christmas party for members, guests and children, 6:30 Saturday, December 12, 1959 at the Waltham Field Station with a buffet supper of special casseroles, Christmas cakes and pies.

The second lesson of the beginners' course will cover: Organization and behavior of colony — castes — duties of each — brood rearing — races — guards — robbing — pollen — propolis — wax — comb — royal jelly — senses — how and why honey is made — role of pollen in nature and in hive, given by Arthur Southwick. — M. Southwick, Corres. Sec.

BRUCE L. MOREHOUSE
Crop Reporter Retires

Bruce L. Morehouse, Montevideo, Minnesota, for many years a crop reporter also a frequent contributor of articles to Gleanings has sold his bees and is retiring after 35 years of beekeeping. Many of our older readers will recall the interesting articles submitted by Mr. Morehouse. All of us wish Mr. Morehouse the best a good future holds for him.

MITE NOT FOUND
HOMER LEN FOOTE
Supervisor, Apiary Inspection
Bureau of Entomology
Sacramento, California

Bee specialists in the California Department of Agriculture this month breathed a sigh of relief after searching more than two months for a disease that could not be found to exist — at least, not in California bees.

Len Foote, Supervisor of Apiary Inspection, was notified in late August that Acarine disease had been found in California bees arriving in Australia. This most dreaded of all adult bee diseases is caused by a tiny mite which invades the bees' tracheae or breathing tubes.

Acarine disease, although common in some countries, has never been found in North America and for this reason both Canada and the U. S. prohibit the importation of live honeybees, which could introduce the disease-causing mite. However, exchange of honeybees is allowed across the U. S.-Canadian border.

Immediate steps were taken to find the apiaries from which the affected bees originated. These were located and about 20,000 individual honeybees were collected and examined for the disease. This required opening the thorax of each bee and examining the tracheae under a microscope to determine if the mites were present. No mites were found and no disease was present.

The mystery was finally resolved when it was discovered that Australian authorities had mistaken an apparently harmless external Acarapis mite for the disease-causing variety.

The Australian report, although incorrect, could have had a serious impact upon California beekeepers, who annually produce and ship over 200 tons of package bees and more than 200,000 queen bees to beekeepers in various states and countries.

There are four species of Acarapis mites. Of these, only **Acarapis woodi** is known to invade the tracheae and cause disease. The others establish themselves in specific places upon the bee's exterior. **Acarapis externus** prefers the neck region; **A. dorsalis,** the back; and **A. vagans,** along the wing veins or anterior of the abdomen.

Investigations during the past month have revealed infestations of external Acarapis mites occurring in the **scutal fissure,** a groove on the back of the thorax, on many bees in samples collected at widely separated points in California and also in Alberta, Canada.

These mites are apparently **Acarapis dorsalis.** They are similar in size and shape to **A. woodi** but there appear to be some rather distinct differences noted by Dr. Baker of the National Museum, which were not previously mentioned by earlier investigations.

The mites seem to be rather widespread and apparently do the infested bees no harm, since in no case have they been found to enter the tracheae and cause damage.

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John 3:16

MITCHELL'S APIARIES
Bunkie, La.

RESEARCH REVIEW

(Continued from page 733)

This review of food exchange by Dr. Free is probably prompted by the fact that as much research is being channeled in this direction as any in Apiculture today. As has been previously stated by several people this research may very well bring about some profound changes in practical beekeeping management.

Free, J. B.
The Transfer of Food between Adult Members of the Honeybee Community. Bee World 40: 193-201. 1959.

The New Yearbook of Agriculture:

THE NEW yearbook of agriculture for 1959 is entitled FOOD. Unfortunately there is only one mention of honey and that mention is short, inaccurate, and misleading. For example it is stated that honey contains 20 per cent water and this is the amount which would make it Grade D.

In other places where honey might be mentioned, such as where the caloric value of various foods is listed, honey is not mentioned.

All of this is rather unfortunate since the yearbooks of agriculture are considered standard references in most libraries.

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F. W. Jones & Son, Ltd., Bedford, Que., Can.

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Advise what you have

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No Matter What Your Interest

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THE STOVER APIARIES

Mayhew, Miss.

"Blessed be the Lord God of Israel, for He both Visited and Redeemed His people".—Luke 1:98

Never a Christmas Morning,
Never the Old Year Ends,
But Someone Thinks of Someone,
Old Days, Old Times, Old Friends.

Let us turn our thoughts away from business for a brief period and, May the Peace and Joy of Christmas be with You.

ROSSMAN APIARIES P.O. Box 133 Moultrie, Ga.

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" The grace of our Lord Jesus Christ be with you all, Amen." — Rev. 22-21.

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CASH FOR BEESWAX. Write as to quantity and we will quote price. MUENCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

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WANTED — Light amber clover, fall flowers, buckwheat and white clover. Send sample and lowest price. CLOVERDALE HONEY CO., FREDONIA, N. Y.

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WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

WANTED—Honey in 60 pound cans, also beeswax any quantity. L. E. ALLEN, TIPTON, MICH.

HONEY WANTED for bottling, bakers including buckwheat. All types, in tins or drums, trailer loads. Send samples representing each lot. ALSO ROYAL JELLY. Write CHAS. E. FARRIS CO., 99 HUDSON ST., N. Y. City. Established since 1910.

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WANTED: Honey—water-white, light amber and buckwheat extracted and comb. Send samples and prices. M. R. CARY CORP., 219 Washington Square, SYRACUSE 8, NEW YORK.

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A TALK TO BEEKEEPERS

(Continued from page 749)

down into simpler sugars by digestive juices before they can be absorbed into the blood stream and assimilated into the tissues. These resulting simple sugars, dextrose and levulose, make up almost the entire sugar content of honey. It has been clinically demonstrated that little digestion is necessary and that absorption takes place quickly." So that seems to be the reason we get quick energy from honey. It is quickly absorbed into the blood stream.

By the way, the statements appearing in this pamphlet I have mentioned have been found acceptable to the Council on Foods and Nutrition of the American Medical Association. I doubt if the majority of beekeepers and those connected with our industry realize what a marvelous food we have.

Some day, (it may not be in my time) when the general public knows about the food value of honey, beekeepers may find it difficult to produce enough honey to supply the demand.

Cutting What We Thought Was a Bee Tree

This issue of Gleanings carries an article on an old method of cutting a bee tree and securing the honey. I am reminded of an experience a neighbor boy and I had along this line when I was 18 years of age. We spotted a bee tree, or thought we did, about a mile and a half from my home. It was a large elm about three and a half feet in diameter with a knot hole open in one of the limbs. Early one morning we journeyed to the tree, carrying all the necessary paraphernalia. To fell that enormous tree was a long arduous task, but hard work meant nothing to us in those days. Finally the giant elm crashed to earth with a roar that reverberated through the countryside. On examining the hole in the tree we found that a swarm of bees had occupied the interior but none were in the tree at that time. So it turned out to be "much ado about nothing" and we returned home carrying our saw, axe and buckets, a bit weary but wiser.

We did not ask permission of the owner of he woods to cut the tree, as we should have done. We kept the matter a secret and no one ever accused us of trespassing.

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MERRY CHRISTMAS, FOLKS

(Continued from page 741)

Measure and combine the dry ingredients ahead of time. Then Christmas morning while the bran is soaking in the liquid portion, start the oven, grease the muffin pans and you are well on the way. While the muffins are baking, start the coffee perking, set and decorate the tray or table. Fun!

The aroma as these lucious muffins bake may cause Mom to start investigating!

And, why not prepare a batch or two of honey coated nuts for nibbling, a party, or when unexpected guests drop in. Easy-to-do and oh so good!

Maraschino Cherry Honey Muffins

One cup whole bran cereal, ⅓ cup buttermilk or sour milk, ½ cup honey, 1 egg, ¼ cup soft shortening, 1 cup sifted flour, 1 teaspoon baking powder, ¼ teaspoon soda, ½ teaspoon salt, 6 maraschino cherries, cut in half and drained and ¼ cup honey.

Combine bran, buttermilk and honey; let stand about 10 minutes. Add egg and shortening; beat well. Sift together flour, baking powder, soda and salt. Add to first mixture, stirring ONLY UNTIL COMBINED. In each of 12 greased muffin cups place one cherry half and 1 teaspoon honey. Fill each cup ½ full with batter. Bake in moderately hot oven, 400°F., about 20 minutes. Serve immediately.

Honeyed Nuts

One and ½ cups sugar, ¼ cup honey, ½ cup water, 3 cups walnut meats, and 1 teaspoon vanilla.

Put sugar, honey and water in pan and cook to a soft ball stage. Remove, add vanilla and walnuts and stir until creamy and thick. Turn onto wax paper to harden. Break into individual pieces.

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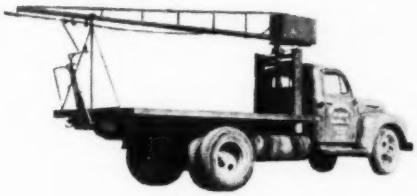

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Index to Display Advertisers

Aeppler Co., C. W. 757
Alvies, Don 707
American Bee Journal 754
Australasian Beekeeper 758
Australian Bee Journal 758
Baker's Apiaries 757
Bessonet Bee Company 755
Billy Bee Honey Products 707
Blue Bonnet Apiaries 759
Burleson & Son, T. W. 754
Calvert Apiaries 760
Canadian Bee Journal 757
Carbolineum Co. 708
Cary Corporation, M. R. 706
Chrysler & Son, W. A. 706
Conneaut Can Co. 708
Dadant's & Sons, Inc. ..... Inside front cover
Garon Bee Co. 760
Harper, Carlus T. 757
Jackson Apiaries 707
Jensen's Apiaries 755
Jepson Co., H. H. 708
Jones & Son, F. W., Ltd. 754
Kelley Co., Walter T. 761
Leverette Apiaries, Walter D. 759
Little's Apiaries 759
Lotz Co., August 707
McCary, & Son Bee Co., G. D. 754
Mitchell's Apiaries 753
Myers Craft Mfg. Co. 708
New Zealand Beekeeper 759
Plant, W. E. 707
Prairie View Honey Co. 706
Reams, W. D. 758
Root Co., A. I. ..... Back covers
Rossman Apiaries 755
Shackelford, John S. 759
Smith & Son, Geo. E. 753
Stoller Honey Farms 706
Strachan, Don J. 760
Stover Apiaries 755
Taylor, Stewart 708
Walker, Eugene 707
Wally's Bee Enterprise, Inc. 707, 754
Wax Workers, Inc. 757
Weaver Apiaries 707
Weaver & Sons, Howard 754
White Pine Bee Farms 754
Wilbanks Apiaries 755
Williams Bros. Mfg. Co. 706
Wing & Sons, J. E. 759
Woodman Co., A. G. 708
York Bee Co. 758

Index to Gleanings in Bee Culture

Volume 87, 1959

In using this index the reader should not fail to note that it is divided into four departments, namely: General, Editorials, Contributors, and Illustrations. The index of General includes every.hing except Editorials, Illustrations, and Contributors.

General

A

Acarine mite reported in U.S. 666
Agriculture, yearbook, new 753
Alberta bound 214
Allergy, bee 297
Apiary, Malabar farm 524
Articles published by A.P. Sturtevant 694
Asked and Answered
  AFB in comb foundation 243
  bee pasture, rights to 439
  bees, long-tongued for red clover 631
  bees, moving a short distance 55, 501
  bees, placing in cellar 696
  bees use more stores 54
  bees, wintering in closed building 696
  beeswax, clarifying 116
  beeswax, removing from floors 630
  brood cell 55, 243
  brood rearing, length of 631
  building up, in early spring 242
  cellar wintering, cause of loss 54
  combs, number of cells in 117
  cramps 438
  decoy hives catch swarms 438
  drones, effect on yield per colony 566
  entrance, effect of, on swarming 439
  foundation with drone size cells 697
  frames, deep space below 696
  hive, angle of 55
  hives, examing 566
  honey flow, knowing the 307
  honey for infant feeding 697
  honey, heating in jars 711
  honey plants, mints 117
  honeycomb cell, shape of 116
  increase, working for 306
  laying, young bees begin 438
  metal rabbets, purpose of 54
  pollen clogged combs 501
  queen and drone traps, use of 306
  queen bee, head and mouth parts of 242
  queen, confined to lower story 567
  queen daughter differs from mother 630
  queen, finding in cross colony 500
  queen, laying in food chamber 500
  robbing, how to know when bees are 242
  sugar syrup vs honey for brood rearing 307
  surplus honey, why none secured 439
Association, earns money 487

B

Bee club 343
  cellar in Saskatchewan 658
  enemies, in India 360
  escapes, cleaning 433
  industry and German insecticides 40
  or not to "bee" 526
  pasture 439
  repellent, uax as 99
  tree 422
Bee Sweetening, our supply of 716
Bees and war 335
  black 406
  boys and 664
  buying 157
  dark, experience with 156
  earn education 602
  enjoyed by school children 731
  evicted by amateur 341
  fertilizer value 617
  fifty years of wintering 742
  for New Guinea 556
  in extension office 12
  in Kashmir 424
  in Roman coat of arms 99
  in school 7
  Italian, remove cocoons 492
  killed by cars 727
  moving from hayloft 396
  packages of in Manitoba 89
  producing in California 140
  serve double purpose 408
  spring management of 150
  stop thieves 111
  trap out with pipe 651
  trucking 91
  vandalism bad for 663
  wintered in north 614
  wintering, 50 years 742
  working without a veil 104
Beekeeper and his new year 22
  Chilean, hobby 528
  city girl becomes successful 332
  kills bear 463
Beekeepers arise 263
  discuss producing anl selling in Texas 80
  for three generations 455
  honor Paddock 27
  meeting, my first 423
  Ohio, meet 552
  vandalisim bad for 663
  what's wrong with them? 105
Beekeeping, ancient, in Japan 15
  business taken over by young man 135
  can be profitable 722
  cross-word puzzle 48
  French 286
  future for 32
  gadgets and short cuts for 146
  happiest year in 79
  I started on a dare 728
  in the 50th state 647
  in New Brunswick 24
  in Quebec 463
  in Uruguay 711
  seventeenth international conference 43
Bee journal, Calif. bee times 563
  Indian, 20 years old 498
Bee Lines to the Editor
  beekeeping conditions in N. Y. changed 579
  bees have more than instinct 70
  disagrees with Propolis Pete 67
  honey lowers blood pressure 579
  swarm in July 505
  tide is in our favor 391
Bee stings, potency of varies with season 351
  when they hurt 76
Beeswax, healing properties of 331
Beeyard, gardening near 84
Biological control, successful 478
Books and Circulars
  a new book—bumblebees 538
  beginning beekeeping 301
  encyclopedia of organic gardening 367
  history of beekeeping in Britain 368
  how to keep bees by modern system (Jap.) 367
Boys and the bees 664
Bumblebees, handling 222

C

Cage queen marking 617
Cappings, what not to do
Cars kill bees 727
  with them 404
Check-off plan doesn't cost—it pays 358
Children enjoy bees 731
Christmas, Merry, Folks 741
  time 745
Coffee at three 613
Colony, two queen that pays 276
Comb honey, easier production 338
  equipment 278
  plastic container 732
  producers—at ention 667
  season, unusual 282
Container, comb honey, plastic 732
Convention, Florida 746
Crop report, annual 687
Cross word puzzle 48
  solution to 104
Crown vetch, pollination of 590

D

Diehnelt family, the 583, 652
Display, educational, 4-H 721
Double mother 239
Dream realized, a 28
Drouth shrinks California honey crop 668

E

E.A.S. meets at Cornell 410, 428, 618, 562
Education, bees earn 602
Escapes, bee, cleaning 433
Experiences with dark bees 156
Extension work can be fun 472
Extracting and harvesting the honey crop 398

F

Federal marketing order
  (for the order) 682
  (against the order) 684
Federation meets 51, 169
Fertilizer, value of bees 617
Flood damage in Ohio 179
Floods, beekeepers die in 690
Florida convention, the 746
Foreign Lands
  bee journal has color photo on cover 35
  bee stings, potency of, varies with season 351
  bee strain a joke? 287
  bee strain, new, in Germ. 35
  bees in Roman coat of arms 99
  colony, size of 543
  colony strength 543
  Dyce visits Australia 287
  fire, avoiding a 99
Glauben, Lieben, Handeln 479
hives, plastic foam 479
honey, best body builder 223

honey, Chinese drink 222
honey from shaded colonies 351
honey, Germ. advertising 415
honey lowers blood pressure 415
honey, things worth knowing 99
hydrogen bomb and bee .. 3o
nectar, influenced by weather 380
nectar secretion 543
nosema, Doull's opinion on 479
pollen, danger in eating .. 351
preservatives for beehives 479
price increase, blow to Dutch beekeepers 287
royal jelly, drug or food 543
royal jelly has bacterial action 223
swarms and Germ. laws 287
wax as bee repellent 99
Four-H field day 488
educational display 721
Frame storage, a queen 422
France, Henry Shaefer and wife visit France 201
Fungicides, effects of 678

G

Gadgets and short cuts for beekeeping 146
Gardening near the beeyard 84

H

Hive, club 232
in extension office 13
spotted 213
tools 475
Hives, preserving 498
packed for winter Nov. cover
Hive stands, old tires not good for 17
Honey at Easter 223
can't be made in mud ... 519
cleaning by gravity 23
creamed, making 536
crop factors 344
eats after giving blood .. 537
facts about 554
getting retailers to sell more for you 589
harvesting and extracting 398
heating 623
helps better meals build better families 622
house 73
increase in Canada .. 498, 629
industry council 230
liquefying 471
market, looking at 530
market news you can use 725
meats a la 677
peanut butter 491
producing and selling in Washington 550
production and selling of 80
selling 470
show, American National 402, 430, 628
sold in Utah cafes 10
sweets 229
try it for taste 599
used in medicinal preparations 719
yeast growth in 18
Honey crop, harvesting and extracting 398
in Calif., shrunk by drouth 668
Honey flow, knowing the .. 307
Honey house, bees in the .. 209
Honey market, a look at .. 530
Honey Plants, Let's Talk About
blackberry 483
chestnuts 675
dandelion 38
horsemint, blackland 547
long flowered catsclaw .. 419
mesquite 611
madrona tree 739
pussy willow 100
sourwood 355
spring titi 227
sumac, smooth 291
virginia creeper 166
Honey queen competes in national contest 113
Kay Seidelman, for 1959 562
Honey Recipes ....
bread, ginger 229
bread, nut-orange 37
buns, currant 165
cake, almond cream 357
cake, apple spice 111
cake, coffee 639
cake, fudge 49
canadian bacon, honey glazed 703
chocolate crusted almond cream 613
cole slaw 572
filling, almond cream ... 383
ice cream, banana crunch 421
ice cream, basic 432
jellied dessert 383
loaf, ham 181
meat balls, honey apple-sauce 677
muffins 549
muffins, bran 60
muffins, maraschino cherry 383, 760
muffins, spiced apple 103
nuts, honeyed 760
potatoes, sweet 181
pineapple slices, crusted .. 239
pudding, blueberry upside down 485
pudding, rhubarb bread .. 304
pie, apple, deep dish 103
pie, paradise 239
pie, peach 511
salad, lima bean 572
sherbet, orange 432
sherbet, rhubarb 304
shortcake, raspberry or strawberry 511
rolls, twice-baked 60
thirst quencher 304
topping 238
Huff, G. Earl 366

I

Insecticides and the bee industry 40
Interlooking 362
Israel changes to Italian bees 523
Italian bees, Israel changes to 523
remove old cocoons 492
It's An Idea
hive weathervane 461
installing package of bees 139
introduction cage 359
Robert Spicer wedge 265
spring feeding 9

K

Knowles' breakfast cocktail 87

L

Live and Learn ..... 36, 102, ... 164, 226, 290, 354, 418, ... 482,, 546, 610, 674, 738
Loyalty, test of 149

M

Malabar farm apiary 524
Management, spring, of bees 150
by a sideliner 210
Marketing bill, packers defeat 300
Marketing order, federal
(for the order) 682
(against the order) 684
Maxwell, H. L., reports on S.S.F.B. meeting 172
Medicinal preparations, honey used in 719
Meeting of A.B.F. 168
Bee Research Assoc. 222
E.A.S. 162, 241
S.S.B.F., report of 172
Menace, the big 209
Miller, Dr. C. C., an evening with 83
Mite not found 752
Monastery, revolution in the 594
Money raising, a new way .. 9
Monthly Honey Report ....5, 69, ... 133, 197, 261, 325, 389, ... 453, 517, 581, 645, 709
Morehouse, Bruce, retires 752

N

Nectar influenced by weather 380
source, par excellence 460
Neighbors had to move 83
New Guinea, bees for 556
News, honey market, you can use 725
North, wintering bees in the 614

O

Obituaries
Arens, Mrs. Matt 629
Bush, J. E. 695
Cummins, Ruth 241
Gilliland, Lee 695
Hall, Leon C. 629
Hobart, Mildred 110
Lis, John 498
Lotz, George 109
Miller, Fred O. 629
More, George T. 301
Parks, H. B. 109
Sturtevant, Dr. Arnold P. 693
Wilson, Prof. H. F. 241
Olden days, in 490

P

Package bees in Manitoba, use of 89
1,000 from the south 270
Packers defeat marketing bill 300
Paddock honored by beekeepers 27
Peer, Dr. D. F., appointed Ass't Prof. in the Dept. of Ent. at Univ. of Wis. 750
Pesticides, a broader view 274
Pine cone, oversized 273
Pollens, identifying 45
Pollination, controlled 206
of crown vetch 590
on the Univ. farms 266
red cloper 234
service, hazards of 346
Pope Pius XII talk given to International Congress in Rome, Sept. 1958 143
Price support honey 177
of 1959 409
Parliamentary procedure ... 486
Procedure, parliamentary .. 486
Prickly ash—they made me cough 551
Producing and selling in Washington 550
package bees and queens in California 140
Production, easier comb honey 338

Q

Queen attendants, removing the 29
head and mouth parts of 242
honeybee 327
marking cage 617
storage frame 422
Queens corner, from the 153
how to rear 393
producing in California .. 140

R

Research grant 661
Research Review
acarine disease 98, 606
AFB in New York 286
AFB on island of Cyprus 542
AFB spores 222
bee repellent fails test .. 606
bee repellents 542

bee semen, preserving ... 222
beekeeping, French 286
beekeeping, Russian 34
bees lost when moved ... 222
biological control is successful 478
blueberries 350
blueberry pollination 34
bumblebees, handling 222
cyanide, death from 703
EAS meeting 162
EFB 350
food transfer in colony .. 733
honey wine production ... 34
hormones, more on 286
insecticides 350
Lindauer lecture 414
pollination, tree fruit 222
programs, future 222
queen differentiation 350
queen recognition by workers 478
royal jelly contains antibiotic material 606
science in Britain attains Cabinet Status 733
species, what is a? 669
time sense of bees 733
wood preservatives toxic to bees 542
yearbook, new, of agriculture 733

Requeen, an ugly swarm the easy way 496
Retailers, getting them to sell more honey for you 589
Revolution in a monastery .. 594
Royal Jelly, in the interest of 92
may show way to control cancer 363
mystery of 296
what about it? 557

S

Sales promotion, lest we forget 600
Salesman, woman is a born 657
Seidelman, Kay, 1959 honey queen 562
Selling and producing in Washington 550
Shaefer, Henry, and wife visit France 201
Short Course at Iowa State College 302
Minnesota University 50
at Penn State Univ. .. 240, 426
Show, American National honey 402, 430
Smoker fuel 283
Smooth and Cool 421
Surprise, Do you want a? .. 359
Swarm, a sucker for a 108
holds tight 548
one for the book 155

ugly, easy way to requeen 496
Spring, coming of 218
has sprung 280
tonic 293
Sturtevant, A.P., his published articles listed 694

T

Talk to Beekeepers ..... 46, ... 106, 174, 236, 299, 364, 434, 493, 559, 624, 688, 748
Texas bee school, ... 301, 366
Tools, hive 475
Trucking package bees 91

U

United States, acarine mite reported in 666
Uruguay, beekeeping in 711
Utter vs Utter 336

V

Veil, working bees without a 104

W

Who's .Who in apiculture .. 294
Winter, keeping busy in 86
Wintering bees in the north 614
bees for 50 years 742
Woman is a born salesman 657

Y

Yearbook, new, of Agric. .. 753
Yeast growth in honey 18

Illustrations

A

A.B.F. meets here 751
Algaroba tree, top of 650
American Federation banquet 221
representatives at Tampa 275
Amos, John M., next to his display 172
Ant stand 361
Apiary developed from southern packages 272
of A. I. Root Co., 50 years ago 94
of A.P. Luce in Hawaii .. 648
of August Diehnelt 587
of Brother Adam 597, 598
of Edmund H. Homann .. 748
of F. J. Sylvestre 465
of Gordon Sherwood 627
of John Ledda 24
of Louis Regamey 215
of Mr. F. Semenchuk 712
of Maynard D. Curtiss 730
on an island 713
part of Malabar 525
used to pollinate crown vetch 590
with queen mating hives 395
where experiments were conducted 614
Apiarjes at "Vivero Nacional de Toledo", Uruguay .. 714
Atkins, Leslie 80

B

Baby carriage, super hauler 412
Barnett, Ross, supervising uncapping operation ... 408
Barth, Walter 69
Bastet, and first batch of cells for royal jelly 201
new home 202
Bayers, Leland, making pollen tests 208
Bear, and Elmer Skuce standing over 469
stretched out on ground .. 469
Beck, Mrs. covering cold candied honey with nuts chocolate 653
Beebox 716
Beekeeper, a Chilean hobby 528
in Uruguay, Mr. Simon Serebrenic 711
Bees, attending block of wood ..... October cover
close-up of workers 413
clustered at entrance 364
clustered in shape of cone 273
cutting away twine 397
dead, scraped off bottom board 152
fed on Fuller candy 151
from cage to hive 212
in cabbage patch 269
in greenhouse 266
in plastic screen cage 267
of John Ledda 25
on posts 360
package, installed by 4-H boys 489
package, ready for hive .. 211
packed in snow 270
pollinating muskmelons ... 268
populous colony at first inspection 150
storing honey 154
tree in Florida 422
Beeswax honey container in humidity chamber 18
Beeyard, damaged by bear 468
Bellmann, Mrs. cutting cold candied honey. 652
Benson, Clarence L. presenting plaque to J. I. Hambleton 220
Bevers, Harvey with frame of honey 25
Blackberry 483
Blackland horsemint 547
Brandes, Mike, eating honey 537
Bread, honey nut-orange ... 37
Boettcher, H. O. 410
Boiler for heating honey ... 623
Bologna, major place with bailiff-palace 42
MM. Borneck checking colony 204
Boyle, Frank C., watching swarm enter hive 108
Brood, well covered frame of 529
Bunch, F. Q., examining a colony 399
Burleson, Edward, ... 171
Burr, Leslie 104

C

Cage, plastic, bees in 267
Cage, queen marking 617
Cages used in crown vetch research program 593
Cake, honey fudge 49
Can, 60-lb. with handles ... 147
Candy, Fuller, bees fed on 151
Carey, Jack 95
Cartoons ..... 39, 107, ... 167, 173, 347, 423, 467, ...564, 603, 676, 747
Catsclaw, long flowered .. 419
Chapman, Floyd B., and observation hive 524
Charbriers, with hives covered for winter 203
Chilean hobby beekeeper ... 528
Clay, Harold J. 220
Charlotte 50
Chinquapin 675
Coggshall family at extracting time 455
Millard, and hive loader .. 457
Cole, Otto and his bees 158
Colonies containing prolific queens 401
on way to new location .. 458
ready for winter 743
wintered-over skyscraper 460
Comb being rebuilt with new wax cells 492
built in the hay 396
containing sealed honey 106, 365
containing sealed worker brood 298
made in branches of tree 83
produced in air-conditioned super 148
Comb honey sealed in plastic bags 332
Containers, re-usable glass 284
comb honey container 732
plastic comb honey 732
squeeze bottle 349
Contest, smoker lighting 488
Cooke, Don 553
Cornell Museum, showing antique extractors 620
Cornell University, picturesque site at 411

Creaming honey 536
Curtis, Maynard D., taking own picture with bees 728
Czarnecki, George, placing cans of honey on hot water pipes 654
showing sheet of filter cloth 656

D

Dandelion 38
Deschenes, Mrs. Lucy sealing comb honey in plastic bags 332
with handful of bees 334
Deyell, M. J. at desk in Gleanings library 624
and Hu-A-Kam of British Guiana 413
and Joe Sedlak, inspecting bees 477
and scale hive 46
Diehnelt, Walter and wife .. 583
filling barrels from tanks on 2nd floor 655
in extracting room 585
August, apiary of 537
Display, at U. S. International food exposition 534
four-H 476
honey and bees, at Illinois state fair 670
honey, in grocery store ... 470
Lorain Co. B.A. 349
of Northeastern Oklahoma Bee. Assoc. at Tulsa 734
trophy for best bee display 670
Dyce, Dr. E. J. 619, 647

E

E.A.S. members in Dr. Phillip's library 621
Eberhard, F., caretaker of observation hive in Bonn, Germany ..... June cover
Elevator for loading and unloading hives 659
Escape board as cover for feeder can 9
Equipment inspecting, used in honey show 472
Essex Co. BKA meeting 232
Exhibit, U.S. in Germany .. 94
U.S., in Switzerland 477
4-H, ... 476
Extracting honey 398
Extracting plant using three radial machines 136
Eyelets, inserting 147

F

Feeding sugar in friction top pail 174
Finger Lakes Co-op bottling and labeling operation 604
Fisher, Raymond 80
Fletcher, 4-H'r .....41, 93, ...148, 208, 283, 342, 407, ...459, 533, 593, 663, 724
Foote, Homer Len 666
Fountain with bees, in Rome 348
Frame containing snow white comb 529
containing queen cells 393
pieced together 397
queen storage frame 422
Freaks of nature .... Jan. cover
Free, Dr. John B. 619
Fungicide feeding, results of 681

G

Gadgets for inserting eyelets in end bars 147
Gardening near beeyard 84
Gastrau, Mrs. covering cold candied honey with nuts and chocolate 653
German youth and observation hive .... August cover
Gil, Dr., visits Root Co. 412
Goldsmith, Mrs. Laurens, and bees at school 7, 8
Grace, Harriett M. 171
Greenhouse, bees in 266
Gubert, A. W., Mr. and Mrs., award winners 671
Guyton, Prof. F. E. 159

H

Hambleton, J. I. 220
Haynie, Dr. John D. 173
Heater, flash 655
Hillsboro Hotel, site of ABF meeting 51
Hive, log, Japanese bees ... 16
bees entering from downspout 651
marking 237
modern, Japanese are trying 16
observation, and German youth ..... Aug. cover
observation, glass June cover
packed for winter 210
skyscraper 437
spotted 213
typical in Korea 14
wall pot 425
with pollen insert ... 206, 207
with weathervane on top 461
Hive lifter, demonstrated by N. Sharp 241
handy gadget 561
Hive tool, carrier for 475
Hive tools 475
Hives packed for winter ..... November cover
Honey almond cream cake .. 357
almond cream, chocolate crusted 613
banana crunch ice cream 421
blueberry upside down pudding 485
currant buns 165
ginger bread 229
muffins 549
Honey Acres, buildings at .. 584
Honey, bees storing 154
Honey, boiler for heating, .. 623
being sampled by Santa .....December cover
creaming outfit 535
granulated, being placed on hot water pipes 654
jars, at Food Fair in Munich 275
Honey house 73, 74, 75
lighting way to 521
Honey servers being filled .. 10
Honey show, American National 402
Honey stand, of Geo. Forgy 434
Honey queens
Behrens, Marlies, Germ. .. 95
Bowen, Joyce Ann, Tenn. 31, 169
Concle, Edith May, Pa. ... 169
Frank, Shirley, Pa. 605
Gottshalk, Evelyn, Wis. .. 169
Kuerschgen, Ann, Mo. 31
Meyer, Rita, Mo. 497
Seidelman, Kay, Michigan 159, 169, 540
Whitely, Judy, Florida 30, 169
Howland, Bob, distributing bees at express office 343

I

Inner cover 742
dry leaves placed to absorb moisture 743
Insulation, fiber glass 730
Iowa, Miss, receives Indian headdress 540

J

Japanese bees in log hive .. 16
trying modern hives 16
Jeffers, G. L. and students examining drone 731
Jones, Aylmer J., making a sale of honey 618

K

Kane, T. E. extracting honey 520
holding queen cells 519
Mrs. enjoying yard 522
Kehrle, Adam or Brother Adam 594
one of his apiaries .. 597, 598
Kelley, Walter 80
Killion, Carl E. 22
and his bees ..... July cover
Knightley, Mrs. Minnie and husband 526
Korea, typical hive in 14
Kumar, Lola, old time beekeeper 425

L

Leidheiser, Paul C. 12
Lis, John 498
Lizard gate 361
Loader, work saving device 33
Log gums, empty 493
Lueddecke, Louis and Ray Reinhold installing bees 497
Luce, Allen P., in apiary in Hawaii 648

M

McGinnis, Patricia, 1960 Florida Honey Queen and State Assoc. Officers ... 746
Macadamia nut plantation .. 649
Mackensen, Dr. Otto and finished queen cells ..... March cover
Madrona tree 739
Malabar farm, main entrance to ..... Sept. cover
Management, summer, by 4-H'rs 552
Meat balls, honey applesauce and biscuits 677
Mesquite 611
Mills, Joe, operating label machine 137
operator of Schultz honey farms 135
More, George T. 301
Morse, Dr. Roger A. 34
Muffins, luscious honey 741
Muskmelons, bees pollinating 268

N

Nichols, Paul destroys bee-eating skunks 284

O

Officers at S. C. meeting ... 605
of American B. F. 168
of Cook-DuPage 30
of the Indiana Ladies' Auxilliary 735
of Michigan B. A. 158
Oren, Fred admiring trophies 221

P

Package bees, loading spraying and installation 89
Paddock, Prof. Floyd, honored by Iowa beekeepers 27
Parks, H. B. 109
Pie, deep dish honey apple 103
Plastic honey bags containing comb honey 332
Plectranthus, main source of nectar in Kashmir 431
Pollen, brushing from legs 45
grains 235
Production, royal jelly 92
Project, boys working on ... 409
Puppe, Mr. and Mrs. Henry F. 221
Pussy willow 100

Q

Queen and workers on brood cells 327
her royal highness May cover
Queen cells, held by T. E. Kane 519
Queen storage frame 422
Queens, prolific 401

R

Reed, Charles, points to pollen insert 207
Regamey, Louis and son moving bees 217
Rhubarb bread 'n honey pudding 293
River, Smith, California 406
Roth, Ottomar, Mr. and Mrs. 541
Royal jelly, Bastets first batch of cells for 201
colonies kept for 92

S

St. Ambrose and beekeeper 744
Santa sampling honey Dec. cover
Seidelman, Kay, presenting championship awards .. 671
giving prize winning honey to Earl Chesney 735
Sepulvedo, Dr. Juan-Manuel 412
Serebrenic, Simon, beekeeper in Uruguay 711
School house serves as bee cellar 658
Shah, A. M. India 424
Sharp, Norman, demonstrating hive lifter 241
Sikes, Roland 80
Sites to be seen at Cornell .. 411
Skyscrapers, populous 299
during 1955 437
Smith, J. M., unloading package bees 216
Smoker contest 265, 488
lighting the 154
Snow bound ..... Feb. cover
Soder, Carl presenting watch to Prof. Paddock 27
Sourwood 355
Spicer, Robert wedge 265
Spring is here ..... Apr. cover
Spring titi 227
Stegemoller, Casey, shows candle-making skill 541
Stephen, W. A., and 4-H'rs with observation hive .. 604
Stone, Roland, ... 220
Storage tanks of Mr. Horguelin 205
Sturtevant, A. P. at his desk 693
Sumac, smooth 291
Super, adding to, in spring 280
Supers filled with burr combs 495
top offset to allow escape of moisture 342
top view of T comb 278
well filled during flow .. 339
Swank, Chester E. 553
Swarm in room in house ... 155

T

Teitzel, Gilbert and father at honey stand 550
holding swarm 550
Townsend, G. F. 95, 619
Tree, bee in Florida 422
Triplett, Gene and scythette 348
Trophy, A. I. Root, to Floyd Sandt by John Root ... 623
displayed by members of Indiana Bee Assoc 734
Finger Lakes Honey Prod. Co-op to M. L. Yates .. 628
Truck used for hauling 91, 214
Tumbler, reusable glass 671

U

Uncapping B. Ross supervising 408

V

Vandenberg, Harry 12, 13
Virginia creeper 166

W

Wallstrom, R. J. 40
Watkins, S. Joaquin 32
Wax moth, adult on comb .. 558
Weathervane tops hive 461
Webster, Marvin 530
Wedge, Robert Spicer 265
Willard Straight Hall 410
Williams, A. W. shipping bees to New Guinea 556
Wilson, Prof. H. F. 241
Wismer, Rev. and sons 602
Worker bee with stinger embedded 76
Workers, Close up view 413
Wynham Lawn Home boys uncapping 408
loosening frames and inspecting combs 409

Y

Yamagashi, Dr. Saburo and equipment for royal jelly 296
Ycart, F. Rodriguez, editor of El Apicultor Americano and his pupils 711 714

Z

Ziegler, Rosario, spanish interperter 412

Contributors

A

Anderson, Dr. Edwin J. 266, 590
Ardrey, H. E. 490
Arellano L., Haroldo 528

B

Badger Bee 87
Barth, Erika ..... 35, 99, ... 223, 287, 351, 415, 479, ... 543, 607
Barth, Walter ..... 3, 69, ... 133, 197, 261, 325, 389, ... 453, 517, 581, 645, 709
Beekeepers News 164
Beucus, William 79
Bevers, Harvey 28
Bland, S. E. 475, 658
Boettcher, H. O. 410
Boyle, Frank C. 108, 651
Bradshaw & Sons, R. D. 684
British Bee Journal 523
Bunch, F. Q. 396
Burr, Leslie 104

C

California Bee Times 682
Campbell, Mariruth 7
Chapman, Floyd B. 524
Coffey, Whitman 393
Couture, J. M. 463
Curtis, Maynard D. 728
Cyrus, Charles 341

D

Deschamps, Mrs. Lucie 332
Deyell, M. J. ..... 46, 106, 174, ... 236, 299, 364, 434, 468, ...493, 559, 624, 688, 748
Doonan, Thomas 210
Dunham, W. E. 234
Drs. Gennaro, A. R., Sideri, C. N., Rubin, N. and Osol, Arthur 719
Dyce, Dr. E. J. 647

E

Eckert, Dr. J. E. 346
Edmunds, J. W. 214
Eytan, Dr. A. 594
Ezzell, Austin 589

F

Farner, Kenneth E. 492
Ferguson, R. F. 663
Fleming, W. H. 623
Fones, Henry N. 471
Foote, Homer Len 666, 752
Fortune, M. S. 91
Fox, E. D. 149, 335, 599

G

Gandheker, S. S. 360
Gardner, Bob 83
Gary, Norman E. 336
Gill, Stella Launer 554
Goodell, Edward 664
Gouget, Charles W. 84, 600, 725
Grace, Harriett M. 622, 745

H

Hampton, S. K. 10
Happ, Ann Michele 657
Haydak, Dr. M. H. 327, 614
Herier, R. B. 92
Homann, George F. 557
Hubbard, Leo R. 233
Humphreys, John B. 433

I

Inque, Tanji 15

J

Jeffers, G. L. 45, 731
Jones, Almyer 232, 472
Jones, C. L. 276

K

Kagler, Bill 602
Kennerly, A. B. 80, 296, 519
Killion, Carl E. .... 22, 86, 146 ..... 218, 278, 402
King, Chas. C. 678
Kittle, Harley K. 358
Knierman, Dr. John A. 234
Knightly, Minnie 105, 526
Koover, Charles J. 297
Kosanke, Marvin W. 73, 338

L

Leidheiser, Paul C. 12
Lindsey, Charles W. 157
Lovell, Harvey B. ..... 38, 100, ... 166, 227, 291, 355, 419, 483, 491, 547, 611, 675, 739
Lowery, Archie 408

M

McAlpin, Bruce 721
MacCarter, A. H. 496
McCutcheon, D. M. 343
Mahindre, Digamber 537
Martin, Dr. E. C. 18, 344, 486
Maslanka, Mary V. 667
Maxwell, H. L. 166
Morse, Dr. Roger A. ....34, 98, ...162, 222, 286, 350, 414, ...478, 542, 606, 669, 733

N

Nachbaur, Anton J. Jr. 111
Newell, Paul Clark 206
Nielsen, Mrs. Benjamin .. 37, 103, ... 165, 229, 293, 357, 421, ...485, 549, 613, 677, 741
Noetzel, David M. 274

O

Offensend, V. C. 716
Orth, Wesley A. 17

P

Palmer, Stanley 460
Perkins, Gayden 548
Pfister, Grover 742
Prewitt, Ed 722
Propolis Pete .....36, 102, ...164, 226, 290, 354, 418, ...482, 546, 610, 674, 738

R

Rahmlow, H. J. 135, 455, 583, 652, 746
Richards, R. C. 422
Robertson, D. R. 89
Root, Alan 233
Root, H. H. 9, 83, 209, 331, 423, 551
Rusher, Robert H. 263
Rutledge, Wm. III 668

S

Schafer, Mona 49
Schaeffer, H. A. 201
Schlabach, Mrs. R. P. 48
Shah, A. M. 424
Silvernail, Donald R. 404
Southwick, Arthur M. 362
Steffen, Paul 488
Stratford, J. F. 155
Stricker, M. H. 9, 139, 150, 265, 280, 359, 461

T

Taylor, Richard .. 422, 536, 617
Teasley, Carl M. 359
Teitzel, Gilbert E. 550
Telschow, Gustave 282
Tennent, Dr. J. N. 43
Tremblay, J. A. 270

V

Vosburg, Allan R. 487

W

Walker, Eugene 140
Wallstrom, R. J. 40
Watkins, S. Joaquin 32, 156
Webster, Marvin W. 530
Wells, Tony J. 239
White, Arthur 470
White, Francis C. 396
White, Mrs. Thelma 153
Williams, A. H. 556
Wilson, Adam 24
Wilson, Dd. William C. 617
Witter, Reid L. 273
Woodruff, Curtis L. 406
Wyndham, Robert J. 23, 76, 209

Y

Ycart, F. Rodriguez 711

Z

Zetler, George I 727

Editorials

A

ABF deserves our support .. 735
AFB spores, how long viable? 545
Apiaries, large vs small 225

B

Beekeepers, young, needed .. 481
day favored by Apimondia 672
Beekeeping, cutting costs of . 96
in Canada for 1958 161
Beginner, what's he to believe? 225
Bees, and the weather 97
a nuisance? 224
needed by orchardists and seed growers 289
take granulated sugar ... 353
time sense of 737

C

Canada, beekeeping in, for 1958 161
Colony, morale and swarming 416
Comb foundation, manufacturers of to produce only beeswax foundation ... 544
Combs, granulated honey what to do with 289

D

Drones, do they indicate swarming 353
more about them 480

F

Four and one-half million dollars 480

G

Gleanings rates increased ... 672
Granulated sugar for bees 353

H

Honey, demand for dark increasing? 97
enjoy it everyday 609
for breakfast week 609
getting rid of crop 96
in pharmaceuticals 544
less produced 736
loans up 97
marketing problem solved 224
price support operations .. 608
say full flavored 673

I

Introduction, queen and requeening 417

L

Loans, for honey, up 97

M

Marketing problem solved .. 224

P

Price support falls 288
operations 608
Programs for beginners 289
young people on 609

Q

Queens, where will we get better? 161

R

Requeening and introduction 417

S

Stands, roadside, importance of 416
Sugar, large supplies, push prices down 545
Swarming and colony morale 416
does abundance of drones indicate swarming? 353

T

Test case 672

V

Vandalism should be squelched 673

W

Weather and bees 97
Winter, clusters, large vs small 160
losses, reason for 352
stores, don't skimp on ... 608

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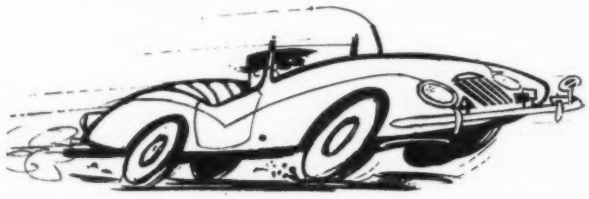

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